9. Push Scenario Group

The Push Scenario Group verifies the ECS capability at the DAACs to interface with external data sources to receive, ingest, process, and archive Level-0 through Level-4 instrument data products, development software, ancillary data, correlative and calibration data, and the Version 0 system migration data.

These scenarios include test descriptions to verify the ECS capabilities to ingest the Landsat-7 instrument data. The Landsat-7 data is received from the following entities: Landsat-7 Processing System (LPS), Mission Operations Center (MOC), Image Assessment System (IAS), and International Ground Station (IGS). The Landsat 7 data is ingested for the ECS at the Earth Resources Observation System (EROS) Data Center (EDC) for Release B. These scenarios also verify the ECS capability to ingest relative Landsat-7 data, update the data receipt log, and provide data storage.

Additionally, the push scenarios verify the capability of ECS to ingest the following AM-1 instrument data: Advanced Spacebourne Thermal Emission and Reflection Radiometer (ASTER), Clouds and Earth's Radiant Energy System (CERES), Multi-Angle Imaging SpectroRadiometer (MISR), Moderate Resolution Imaging Spectroradiometer (MODIS), and Measurements of Pollution in the Troposphere (MOPITT). These push scenarios also verify the capability of ECS to extract associated metadata, update the inventory, and archive higher level processed data for the ingested AM-1 data products.

The push scenarios verify ECS capability to provide an interface operation with the ASTER GDS in the processing of Data Acquisition Requests (DARs). Also, verification is made to ensure the integration of a user interface with the Guide Application Programming Interface (API) for accessing the DAR generation.

Test descriptions within the Push Scenario Group also describe the ECS capability to receive science data production software (SDPS) update packages from the SCFs for the LIS, CERES, ASTER, MISR, MODIS, MOPITT, SeaWinds, COLOR, DFA, MR, ACRIM, and SAGE III instruments. The contents of the SDPS update packages are ingested and archived for use by the ECS for product processing.

Scenarios are included that describe the verification for the ingest of Level 1 ASTER and Level 0 CERES, MISR, MODIS, and MOPITT instrument data to support AM-1 operations.

These scenarios include test descriptions to verify the ECS capabilities to ingest the TRMM instrument data ingested from the Sensor Data Processing Facility (SDPF) and TRMM Science Data and Information Systems (TSDIS). The TRMM data is ingested by the ECS at LaRC, MSFC and GSFC DAACs for Release B. The push scenarios verify the ECS capability to validate and process CERES, Lighting Imaging Sensor (LIS), COLOR, and AM-1 Level-0 data into higher level products (L1 to L4), archive the data products, and perform quality checks as the data is being processed. These scenarios also verify the ECS capability to ingest, extract the associated metadata, update the inventory, and archive Level 1A and 1B processed AM-1 data products for ASTER and TRMM data products for Visible Infrared Scanner (VIRS), TRMM Microwave Imager (TMI), Ground Validation (GV) and Precipitation Radar (PR) data sources

from TSDIS. The verification of handling requests for reprocessing of archived data is also described within the Push Scenario Group. CERES and LIS archived data products are reprocessed based on a schedule. The VIRS, TMI, GV and PR data products are distributed by request to TSDIS for reprocessing. The push scenarios verify the ECS capability to incorporate a fully integrated archive management at each of the following ECS DAAC sites: GSFC, MSFC, LaRC, EDC, NSIDC, JPL, ASF, and ORNL.

The push scenarios are written in a DAAC-unique format. Each of the eight operational DAACs have their own, individual scenario. When the Acceptance Test team visits each of the DAAC sites, the testing at that particular site is representative of the data, operations, inputs, outputs/expected results that are specific to that site. For example, the Level 0 test conducted at the LaRC DAAC involves the CERES, MISR, MOPITT, SAGE III, and ACRIM data products, whereas, the Level 0 test conducted at the JPL DAAC involves the SeaWinds, MR, and DFA data products. The same functionality, where applicable, is demonstrated at each site but the data products used are native to the DAAC.

Table 9-1, Release B Platform and Instrument Data, details the various platforms, instrument name, level(s) of data, and ingest sites that are applicable to Release B functions and capabilities.

Figure 9-1, Push Scenario Group, provides a time-ordered list of the complete set of Push Group Scenarios. Our plan is to repeat this series of tests, in order to show full capability at each site, with slight variations in order to accommodate the evaluation of site-specific (e.g., TRMM) requirements. The specific order in which this series of tests are conducted will be detailed in the ATPR for Release B.

Table 9-1. Release B Platform and Instrument Data

Instrument Platform	Instrument Name	Level(s) of Data	Ingest DAAC Sites
TRMM	CERES	Level 0 data	LaRC DAAC
	LIS	Level 0 data	MSFC DAAC
	VIRS	Level 1a - 3 data products	GSFC DAAC
	PR	Level 1a - 3 data products	MSFC DAAC
	TMI	Level 1a - 3 data products	MSFC DAAC
Landsat-7	ETM+	L0R	EDC DAAC
Flight of Opportunity	COLOR	Level 0 data	GSFC DAAC
AM-1	ASTER	Level 1a - b data	EDC DAAC
	CERES	Level 0 data	LaRC DAAC
	MISR	Level 0 data	LaRC DAAC
	MODIS	Level 0 data	GSFC DAAC
	MOPITT	Level 0 data	LaRC DAAC
METEOR	SAGE III	Level 0 data	LaRC DAAC
ADEOS II	SeaWinds	Level 0 data	JPL DAAC
RADAR ALT	DFA	Level 0 data	JPL DAAC
	MR	Level 0 data	JPL DAAC
ACRIMSAT	ACRIM	Level 0 data	LaRC DAAC
RADARSAT	SAR	Level 1 and 2 data	ASF DAAC
ERS-1	SAR	Level 1 and 2 data	ASF DAAC
ERS-2	SAR	Level 1 and 2 data	ASF DAAC
JERS-1	SAR	Level 1 and 2 data	ASF DAAC

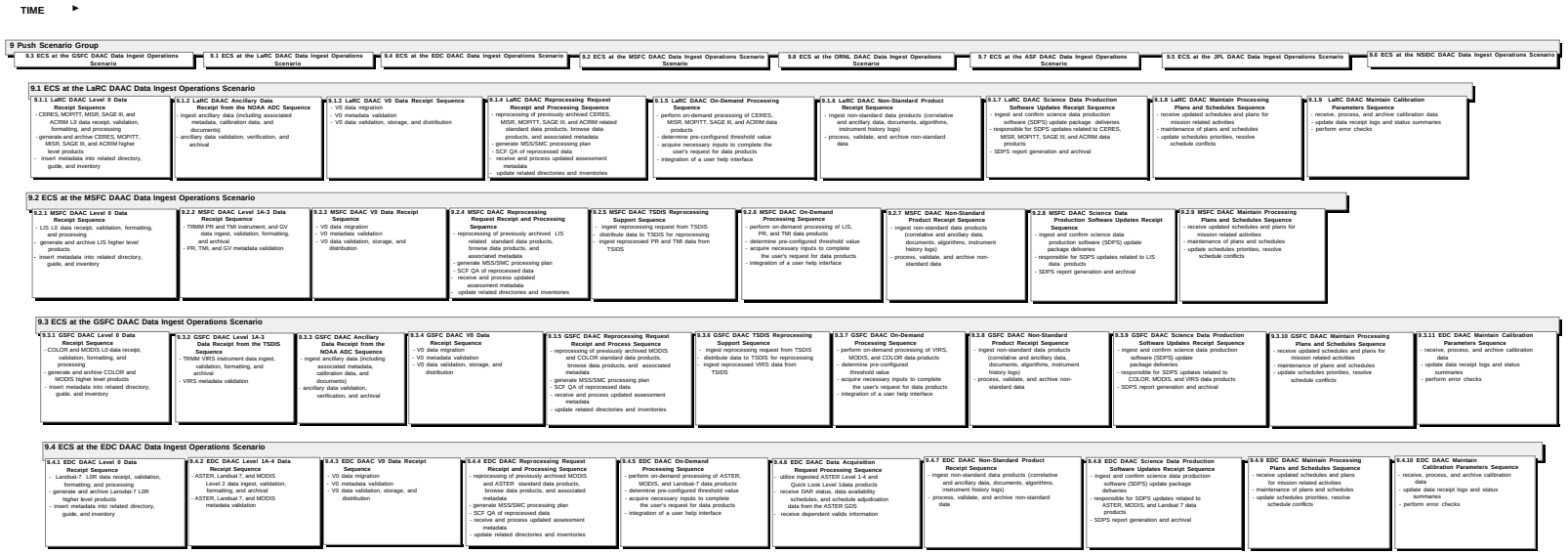

FIGURE 9-1. Push Scenario Group Acceptance Test Sequences (1 of 2)

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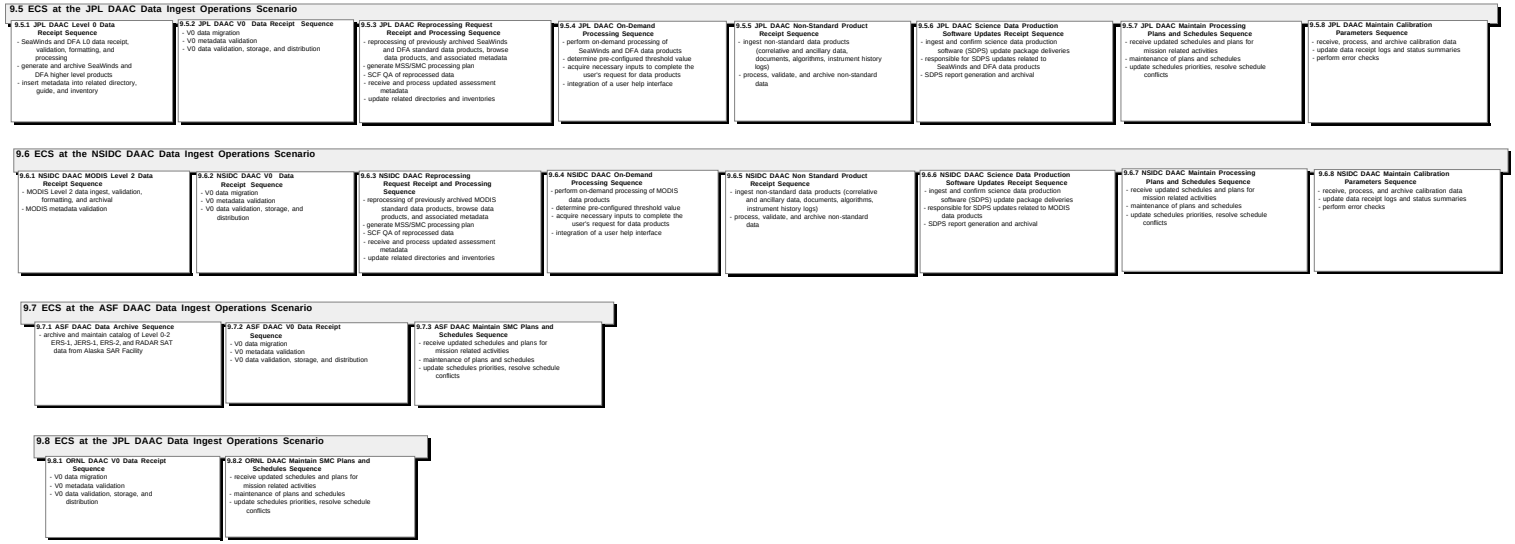

FIGURE 9-1. Push Scenario Group Acceptance Test Sequences (2 of 2)

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9.1 ECS at the LaRC DAAC Data Ingest Operations Scenario

The ECS at LaRC DAAC Data Ingest Operations Scenario details the ingest, processing, and archiving functions that are performed at the LaRC DAAC. These activities include the process of planning for and receiving Level 0 through Level 4 mission related instrument data from external sources. Additionally, the activities involved in the validating, processing (both automatic and on-demand), archiving, and reprocessing of this data are referenced in this scenario. For the remainder of this document, the term "LaRC DAAC" is used to reference "ECS at the LaRC DAAC".

This scenario verifies the capability of the LaRC DAAC to ingest Level 0 science, correlative, ancillary, and definitive data from external sources (e.g., SDPF and EDOS). The capability to ingest CERES, MOPITT, MISR, ACRIM, and SAGE III Level 0 data, format the Level 0 data products, schedule the data for processing, and determine resources necessary to produce the higher level data products is verified in this scenario. Also, this scenario verifies the capability to archive and reprocess the ingested Level 0 data. The capability to execute processing plans linking Level 0 data to ancillary data, science software, databases, and math libraries through the automatic generation of metadata is verified in this scenario. Verification is made to ensure the capability to perform quality assessment of the ingest data products including the following inspections: data checks performed to determine the type of data received, procedures to process the data, and data compliance with EOSDIS standards.

The LaRC DAAC capability to ingest, format, validate, and archive higher level products is verified in this scenario. This scenario verifies that the provider of the data (e.g., SDPF) sends a data availability notice/schedule indicating the planned transfer of Level 1 and higher production data sets with associated metadata and documentation. Verification is performed to ensure that the following classes of data are ingested: ancillary, calibration, and correlative data; metadata; Level 1 through Level 4 data products; products status dialogs; and science software. This scenario verifies that the data received is from an approved/authorized source. The capability to archive product data, store both EOS and non-EOS scientist provided data, insert the metadata into the inventory, and update the data receipt log upon completion of the archiving process is verified in this scenario.

This scenario verifies the capability to reprocess previously archived instrument related standard products, browse data products, and metadata while continuing to ingest the standard daily quota of recent data sets from the external sources. The capability of the LaRC DAAC to reprocess this data in accordance with the reprocessing plan, generated as a result of a reprocessing request, and the availability of resources is verified in this scenario. Verification is made to ensure that the LaRC DAAC ingests data from the CERES, MOPITT, MISR, ACRIM, and SAGE III instruments for reprocessing, and if necessary, reformats the data products.

The capability to record information (e.g., science software), ingest data, produce status reports, and archive science product software updates, in support of science software integration and test is verified in this scenario. This scenario verifies the capability of the LaRC DAAC to support science software integration and test activities for the CERES, MOPITT, MISR, SAGE III, and

ACRIM instruments. The capability to ingest new calibration parameters is verified in this scenario.

This scenario verifies the capability of the LaRC DAAC to receive and process users' on-demand requests for processing of data products (e.g., EOS AM-1 products) currently archived. Verification is made to ensure that in the event that input data necessary to fulfill the request is missing or unavailable, a subscription is placed and the processing request is included in the next plan.

During the time interval of Release B testing, this scenario verifies the capability of the LaRC DAAC to support the AM-1 Mission, including the ingest of AM-1 CERES, MISR, and MOPITT Level 0 data, and the production, archiving, and distribution of AM-1 CERES, MISR, and MOPITT Level 1 through 3 data. Additionally, the capability to support the SAGE III and ACRIM instruments for the Meteor mission includes the following: Science software Integration and Test; Level 0 Ingest; production, archive, and distribution of SAGE III Levels 1 - 2 and ACRIM Level 1A.

Additionally, this scenario verifies that the LaRC DAAC fully supports TRMM mission operations, including the ingest, process, archive, and distribution of CERES data products. Also, the full support of access to V0 data products is verified in this scenario.

9.1.1 LaRC DAAC Level 0 Data Receipt Sequence

The LaRC DAAC Level 0 Data Receipt Sequence verifies that the LaRC DAAC is capable of ingesting Level 0 data from the AM-1, TRMM, and METEOR mission platforms in order to produce Level 1 through Level 4 data products. This sequence verifies the capability to ingest the following Level 0 instrument related data: CERES (TRMM); CERES, MOPITT, and MISR (AM-1); SAGE III (METEOR); and ACRIM. This sequence of tests verifies the LaRC DAAC capability to ingest Level 0 ancillary, correlative (with the exception of TRMM CERES data), calibration data, and in the case of TRMM CERES, solar calibration data. This data is used in the generation of data products. After receipt of the data, the capability to update the data receipt log, validate, and format the data to ensure readiness for processing is verified. Once the validation process is complete, this sequence of tests verifies the capability to generate and archive higher level CERES, MOPITT, MISR, ACRIM, and SAGE III products, as well as, insert the metadata into the directory, guide, and inventory databases.

9.1.1.1 Test Case B090110.010-LaRC DAAC Level 0 Data Receipt, Validation, and Formatting

The LaRC DAAC Level 0 Data Receipt, Validation, and Formatting test case verifies the capability to ingest Level 0, ancillary, correlative, and calibration data from the following instruments: CERES, MISR, MOPITT, SAGE III, and ACRIM, as applicable. The Demonstration method is used to verify that Level 0 data ingest requirements are satisfied. This test case verifies the capability to validate and format the ingested data that is used to generate the Level 1 through Level 4 data products. The Analysis and Inspection methods are used in order to verify that validation, formatting, and product generation requirements are satisfied.

In preparation of the arrival of the Level 0 data, the Data Ingest Technician (DIT) monitors the data availability schedules for the SAGE III and ACRIM instrument data. In the case of CERES, MISR, and MOPITT, a polling mechanism is used in order to determine the availability of data. The verification process begins when the DIT unloads and records the data sets (e.g., metadata and documentation) that have been ingested. An acknowledgment notice is sent to the provider of the ingested data indicating receipt of the transferred data. This data includes representative data rates, known exceptional conditions (e.g., burst rate errors), and intervals of representative unrecoverable data input errors.

The DIT compares the data receipt log with the provider's data transmission log in order to detect any errors, data omissions, anomalies, or other ingest irregularities that occurred during the ingest process. A data transmission status report is generated in order to notify the provider that the transfer of data was either successful or unsuccessful. In the event of an unsuccessful transfer, the DIT requests that the data be retransmitted.

With a prompt from the DIT, the system begins the validation process with the data sets containing the Level 0 and associated metadata that have been ingested, logged, and loaded. Associated documentation accompanying these data sets includes data authorization specifications for all data types ingested and archived. Known exceptional conditions, such as erroneous authorization specifiers, are contained in the data set modules. Upon completion of the validation process, the DIT receives a process complete message that is displayed on the terminal. This message indicates whether the data sets contained any errors. Any detected errors, data header parameters, field sizes presence indicators are reflected in a report that is generated upon the completion of the validation process. The report results are compared with Level 0 standard receipt formats, and if no errors are detected, the data is ready for the formatting process.

9.1.1.2 Test Case B090110.020-LaRC DAAC Metadata and Level 1-4 Data Processing

The LaRC DAAC Metadata and Level 1-4 Data Processing test case verifies the capability to extract and analyze associated metadata and generate Level 1-4 products for CERES, MISR, MOPITT, SAGE III, and ACRIM. The Analysis method is used to verify that metadata generation requirements are satisfied.

The DIT receives a set of notifications to: a) create higher level products by accessing the previously formatted and validated data sets and b) simulate user data notification requests in the execution of specific processing plans associated with the test input data plans. The DIT identifies known exceptional conditions (e.g., incomplete, inaccurate, or low quality data sets) that might impact the resulting processing of the Level 1-4 data products. Additional input includes a set of processing plans representing the entire set of plans that are applicable to the LaRC DAAC portion of the ingest data set.

Included in the test results are ingest data set dumps that are transformed into the approved ECS format for all data types associated with the LaRC DAAC. Other outputs include all report, products, operations, and other logs that are generated as a result of the processing performed in order to generate the Level 1-4 data products. An analysis of the content of the data processing

plan is produced and verifies the inclusion of the following items, where applicable, in the processing plans: a reference to science software used in proceedings, input files and data dependencies, output products, a reference to other plans required for producing output products, a reference to standing orders to activate the subject plan after a higher level product is produced, the definition and reference of utilities (e.g., math libraries), and system resources necessary for processing. A report is generated comparing the linkage of specific processing plans to input data types with expected linkages implied from the input test data set.

Included in the test outputs are on-line and off-line data consistency check results verifying that correct data transformations are applied to each data type and that erroneous data type specifications are detected. This test case verifies the prompt availability of ancillary data prior to processing, as well as, the ability to suspend data processing pending the receipt of ancillary data. Additional outputs include the complete set of Level 1-4 data products detailing the granule id, the date, time, and location where they were created. An output report is generated specifying the following: produced linkage of metadata keywords to processing plans; guide, inventory, and directory information; previously archived documentation; calibration data, science software, instrument and related documentation, key organizations and key personnel.

Additional outputs to this test case include a status report verifying required information is recorded indicating estimated time of completion, number of processes scheduled, number of processes completed, process currently in progress, and accounting data quality. The status log analysis report verifies that products flagged due to low, poor quality are held for review prior to storage, or that a request is made for the data to be reprocessed. Output reports reflecting analysis results detail the following items: log the final disposition and distribution of the product; verification that the user's request for a product was satisfied and the disposition recorded on the proper log; verification that data products necessary for future scheduled processing are held in the proper staging area; and verification that test data set related guide, inventory, directory data, and status summaries are staged for permanent storage. All of the reports mentioned above are reviewed by the DIT for completeness and accuracy.

9.1.1.3 Test Case B090110.030-LaRC DAAC Archive Data Products

The LaRC DAAC Archive Data Products test case verifies the capability to archive the Level 0 and generated Level 1-4 CERES, MISR, MOPITT, SAGE III, and ACRIM data products. The Test and Demonstration methods are used to verify that Level 0 and generated Level 1-4 data products archive requirements are satisfied.

Inputs for this test case, necessary in order for the LaRC DAAC to continue with the archiving process, consist of the formatted Level 0 products produced from the ingested, formatted, and validated data sets described in the previous two test cases (9.1.1.1 and 9.1.1.2). Additional inputs include a set of data processing plan specifications for the established LaRC DAAC storage requirements concerning all of the Level 0 data sets ingested at the site, in addition to the generated higher level data products.

Output from this test case includes standard data summaries detailing the storage management of all the Level 0 data sets from processing that have been ingested through the receipt data stream. An analysis report, depicting the comparison of the data summaries with expected results, is also

included as output. This report also provides the results of exceptional conditions, therefore confirming data which cannot be stored successfully is directed to temporary storage for manual QA by the DIT. Verification is also made to ensure the DIT performs manual QA and prepares a retransmission request when a data set fails to get a satisfactory QA outcome.

9.1.2 LaRC DAAC Ancillary Data Receipt from the NOAA ADC Sequence

The LaRC DAAC Ancillary Data Receipt from the NOAA ADC Sequence verifies the capability to support CERES, MISR, MOPITT, SAGE III, and ACRIM product generation, science software packages, in addition to advertising information describing the NOAA Data Center holdings received from the NOAA ADC. The NOAA science software package includes the following items: science software code, scripts, and documentation contributed by a NOAA Satellite Active Archive (SAA). This sequence of tests verifies the capability of the LaRC DAAC to initiate a product request for the NOAA data. Upon receipt of this request, the NOAA ADC sends a product delivery status indicating the availability of the requested data. When the ancillary data is available, this sequence of tests verifies the capability to ingest, validate, account for, check, and archive this ingested data. Verification is also made to ensure that NOAA users receive status information on the receipt of their ancillary data.

9.1.2.1 Test Case B090120.010-LaRC DAAC Product Delivery Status Receipt

The LaRC DAAC Product Delivery Status Receipt test case verifies the ability to utilize a polling mechanism for determining the availability of NOAA ADC data sets. This mechanism polls pre-designated file lists to see when the NOAA ADC data sets are available in order to proceed with the generation of the CERES, MISR, MOPITT, SAGE III, and ACRIM data products. These data sets include ancillary data and documentation. The Demonstration method is used to verify requirements covered in this test case. Inputs for this test case include the information (e.g., type of data, time of availability, etc.) detailed in the file lists. The DIT reviews these files and verifies that the information is complete and accurate. The expected result for this test case is the successful review of the file lists by the DIT. Any noted discrepancies are reported to the provider of the ingested data. In response to the LaRC DAAC request for the ancillary data, a product delivery response notice is sent from the NOAA ADC to the LaRC DAAC.

9.1.2.2 Test Case B090120.020-LaRC DAAC Ingest/Accountability of NOAA ADC Ancillary Data/Metadata

The LaRC DAAC Ingest/Accountability of NOAA ADC Ancillary Data/Metadata test case verifies the capability to ingest ancillary data, science software packages, and advertising information from the NOAA ADC. This ancillary data is used in the generation of the CERES, MISR, MOPITT, SAGE III, and ACRIM data products. The documentation contains information regarding data sets, science software, and other applicable information. The science software package, contributed by an SAA, includes science software code, scripts, and/or documentation. The Test method is used to verify that ancillary data, science software, documents, and associated metadata ingest requirements are satisfied. Inputs for this test case include the file lists, along with the ingested data and documentation. Expected results include

the successful ingest of the NOAA ADC ancillary data (e.g., CERES), DIT verification that the transfer was successful, and DIT update of the data receipt log. In the event of an unsuccessful transfer of data, the DIT notifies the NOAA ADC and asks for retransmission of the data.

This test case verifies that the LaRC DAAC DIT accounts for all of the ingested data that was received. Verification is made to ensure that the ancillary data, documentation, and associated metadata ingested from the NOAA ADC is complete and accurate. In the event all of the data listed is not present, the DIT requests re-transmission of the omitted data. The Test method is used to verify that data and metadata accountability requirements are satisfied. Inputs for this test case include the pre-designated file lists, and the ingested data and documentation. Expected results include the successful accounting of the ingested data by the LaRC DAAC DIT.

9.1.2.3 Test Case B090120.030-LaRC DAAC Validation of NOAA ADC Documentation

The LaRC DAAC Validation of NOAA ADC Documentation test case verifies the capability of the LaRC DAAC to ingest documentation associated with the CERES, MISR, MOPITT, SAGE III, and ACRIM ancillary data and science software delivered from the NOAA ADC. The documentation is generated in one of the following digital text formats: ASCII test, Microsoft WORD, HTML, Interleaf, Postscript, and WordPerfect. The Test method is used to verify that requirements related to documentation ingest are satisfied. Inputs for this test case include the data receipt log and the ingested documentation. The DIT reviews the data receipt log and verifies that the ingested documentation is of the same digital text format type that was mentioned in the report. Also, the DIT verifies that the digital text format is complete, accurate, and easily accessible via a word processor. For example, the document is in MS Word format and the DIT has MS Word installed on their computer, then the document should easily convert in order for the DIT to review on the monitor. In the event of discrepancies, a request for the retransmission of the documentation is requested. Expected results include the successful validation of the NOAA ADC documentation by the DIT.

9.1.2.4 Test Case B090120.040-LaRC DAAC NOAA ADC Data/Metadata Validation and Compliance Check

The LaRC DAAC NOAA ADC Data/Metadata Validation and Compliance Check test case verifies the capability of the LaRC DAAC to automatically check for transmission errors and perform validation and compliance checks on the CERES, MISR, MOPITT, SAGE III, and ACRIM ancillary data, documentation, and associated metadata ingested from the NOAA ADC. This test verifies that the data and metadata are checked for compliance with EOSDIS defined standards. The Test method is used to verify that data/metadata validation and compliance check requirements are satisfied.

Inputs for this test case include information recorded in the system logs and reports. The LaRC DAAC DIT reviews these logs and reports to verify that no errors were detected during the automatic examination of the data header. During the automatic examination process, checks are performed to ensure that no anomalies are present in the ingested data. If anomalies are detected, retransmission of the data/metadata is requested. On the other hand, if no problems were

detected, the process continues with the validation checks. This process consists of the DIT verifying the following items: data identification, data routing, time-ordering of the data, data gaps, data redundancy, and data quality. Additional validation checks are performed involving the following verifications: presence of required fields, error-free input, correctness of the data set granule size, and other checks that are deemed necessary in order to continue and complete the validation process. Verification is also made to ensure that scientist provided data complies with EOSDIS defined standard for metadata and file content (not scientific content).

Outputs for this test case include the generation of a status report indicating the success or failure of the data/metadata consistency checks. This report also lists whether the ingested data/metadata came from an approved/authorized source. Once the validation and compliance checks have been completed, the LaRC DAAC sends a data check status report to the NOAA ADC.

9.1.2.5 Test Case B090120.050-LaRC DAAC NOAA ADC Metadata Extraction/Verification

The LaRC DAAC NOAA ADC Metadata Extraction/Verification test case verifies the capability to extract and verify the metadata associated with the CERES, MISR, MOPITT, SAGE III, and ACRIM ancillary data. The Demonstration and Inspection methods are used to verify that metadata extraction and verification requirements are satisfied. During the ingest process of the ancillary data by the LaRC DAAC, associated metadata is extracted in order for the data to be identified, referenced, and stored. This metadata is extracted from either the data file, an associated file or message, or derived directly from the delivered file message. In order for this data to be accessible to users from the permanent archive, an extraction of limited metadata is performed. This limited metadata consists of data set name, instrument name, observation time, granule id, and any other pertinent details that are necessary in the processing of this data. Metadata validation checks are based on the ingested data type and the required agreed upon attributes list.

Inputs for this test case consist of information contained in the guide and inventory pertaining to the associated metadata. The DIT verifies that the guide and inventory are present for users to reference related science data by selecting various criteria (e.g., cross references) in order to perform data searches. Verification is made to ensure that a cross reference for the science data is provided. This cross reference includes the following items: navigation, and instrument engineering data; processing science software; software, parameters, and input data used for product generation; data recipients; the processor where the data was processed; and QA validation data. This test case verifies that standard product associated metadata contains content-based summary information, including statistical summaries and granule features. This content-based summary includes: keywords and glossary from investigators; keywords, synonyms, and glossary for cross-product and cross-directory referencing; and identifiers for locating products in the ECS archive by granule. With the cross reference and summary information, the user has the ability to access higher level standard data products by selecting one or more of the criteria listed above.

This test verifies that metadata associated with science software documentation includes version history, authors, written description of product, equations, and references from the higher level products received. Verification is made to ensure that metadata associated with documentation on instrument(s) and spacecraft(s) history contains the following items: housekeeping and ancillary parameters; discipline characterization; key individuals; and references. In the case of metadata associated with static browse products, subsetted data products, subsampled data products, and summary data products, the following information is verified for inclusion: identifiers, science software, written descriptions, equations, authors, and associated references. This test verifies that checks are performed for the presence of an author and date for published papers, research results, and "significant" results and their references to granule-specific information. Expected results include the successful extraction and verification of the metadata, in addition to, the ability of the user to locate the higher level data products by selecting one or more of the search criteria.

9.1.2.6 Test Case B090120.060-LaRC DAAC NOAA ADC Data Archiving

The LaRC DAAC NOAA ADC Data Archiving test case verifies the capability to provide storage for the NOAA ADC data required for CERES, MISR, MOPITT, SAGE III, and ACRIM data product generation, insert the metadata into the inventory, and update the data receipt log upon completion of the data archiving process. Verification is also made to ensure that guide, inventory, and directory information is included in a notice to store the higher level products. The Test and Inspection methods are used to verify that higher level data archiving requirements are satisfied. In order for the archiving process to begin, the following items are necessary: date and time of storage, physical location, data check status, and unique format identifiers. In addition, verification is made to ensure that the proper metadata is produced before the archiving process can continue.

Input for this test case includes information detailed in the data check storage report. The DIT reviews this report to verify that all of the data listed on the data availability notice is present, accounted for, and successfully archived. This test verifies the capability of the LaRC DAAC to store logically grouped sets of data as a single entity. Verification is made to ensure that the LaRC DAAC maintains storage inventories defining the physical location of files and provides an inventory system capable of uniquely identifying each data granule and tracking the physical location of each granule.

This test case verifies the capability of the LaRC DAAC to archive multiple versions of the generated data products. In the event where multiple versions of the data products exist, verification is made to ensure that the LaRC DAAC archives the current version of the data products, therefore, making the preceding version of the product eligible for deletion. The NOAA ADC and the ECS Bulletin Board are notified of the product that has been marked for deletion. Expected results include the successful archiving of the data products.

9.1.2.7 Test Case B090120.070-LaRC DAAC NOAA ADC Data Maintain On-Line Directories

The LaRC DAAC NOAA ADC Data Maintain On-Line Directories test case verifies that the guide, inventory, and directory databases are updated and an insertion is made into the directory when this information is extracted from the CERES, MISR, MOPITT, SAGE III, and ACRIM data product related metadata. There are three levels of user accessible metadata that are maintained: Directory, Guide, and Inventory. The Test method is used to verify that the appropriate information is updated and inserted into the LaRC DAAC directory, guide, and inventory.

Inputs for this test case include the guide, inventory, and directory information that is pertinent to the data products. The DIT verifies that the information in the notice to store is complete and accurate. If any anomalies are discovered, they are logged into the status report. Expected results include the successful update and insertion of the guide and inventory information into the LaRC DAAC directory.

This test case verifies the capability to maintain a log of all updates that are entered into the local inventory. This important log information is used to generate status reports, and in connection with the inventory backup, recreate the local inventory in the event of catastrophic failure. The Test method is used to verify that requirements related to the local inventory log are satisfied. Input for this test case includes the data contained in the local inventory log. The DIT verifies that the log correctly and accurately details any updates and changes that have been entered into the local inventory. Expected results include the successful generation and review of the local inventory log.

9.1.3 LaRC DAAC Version 0 Data Receipt Sequence

The LaRC DAAC-ECS Version 0 Data Receipt Sequence verifies the capability of the LaRC DAAC to ingest V0 data from the V0 LaRC DAAC. V0 migration data can either be static data or operational data. Data which is already archived at the V0 DAAC is defined as static data. On the other hand, operational data is data which is produced by a DAAC V0 processor. This sequence verifies, in the case of static data, the capability of the LaRC DAAC to receive migration data products, browse data, associated metadata and documentation, ancillary and correlative data, from the V0 DAAC. In the event the migration data is operational data, this sequence of tests verifies the LaRC DAAC capability to ingest operational data products, browse data, and associated metadata from the DAAC V0 processor according to an agreed upon schedule. Additionally, verification is performed to ensure the capability of the LaRC DAAC to validate, account for, check, and permanently store V0 data. The ability of the V0 migration data users to receive status information on their ingested products is also verified in this sequence.

9.1.3.1 Test Case B090130.010-LaRC DAAC Ingest/Accountability of V0 Data/Metadata from the V0 DAAC

The LaRC DAAC Ingest/Accountability of V0 Data/Metadata from the V0 DAAC test case verifies the capability of the LaRC DAAC to ingest migration metadata; data products; and ancillary, correlative, and browse data from the V0 DAAC. In the case of operational data, the

migration data is ingested according to an agreed upon schedule directly from the DAAC V0 processor. On the other hand, the static migration data is ingested from the V0 DAAC. The Test method is used to verify that requirements related to the ingest of the migration data are satisfied. Inputs for this test case include various types of hard media (e.g., CD-ROM) and data formats (e.g., HDF). This test case verifies the capability of the LaRC DAAC to ingest the migrated V0 data via one of the following media: CD-ROM, 4 mm tape, 8 mm tape, 6250 bpi magnetic tape, or electronic transfer. Data formats for this migration data can either be HDF or native format. The capability of the LaRC DAAC DIT to update the data receipt log and verify receipt or non-receipt of the migration data is verified in this test case. The data receipt log is updated regardless of whether the transfer of data was successful or unsuccessful. Expected results include the successful ingest of the V0 migration data in one of the approved hard media and format options (e.g., CD-ROM and HDF).

Additional inputs for this test case include the ingested V0 migration data. This test case verifies that the migration data transferred from the V0 DAAC is complete and accurate. This test verifies, in the event of transmission difficulties, the ability of the LaRC DAAC DIT to notify the V0 DAAC of the problem and request that the V0 migration data be retransmitted. The Test method is used to verify that requirements related to verifying the accountability of the migration data/metadata are satisfied. To exercise this capability, this test case verifies that the DIT to accounts for all of the transferred V0 migration data in the data receipt log. Expected results include the successful transfer and accountability of the V0 migration data.

9.1.3.2 Test Case B090130.020-LaRC DAAC Ingest Migration Documentation and Validation

The LaRC DAAC Ingest Migration Documentation and Validation test case verifies the capability of the LaRC DAAC to ingest migration data products related documentation. The Test method is used to verify that ingest and validation requirements related to migration data documentation are satisfied. Inputs for this test case include the various required digital text documentation formats (e.g., MS Word). The capability of the LaRC DAAC to ingest migration data documentation in various digital text formats is verified in this test case. These six (6) formats include the following: ASCII text, Microsoft WORD, Hyper-Text Markup Language (HTML), Interleaf, Postscript, and WordPerfect. To exercise this capability, the V0 DAAC sends the migration data in the various formats, listed above, to the LaRC DAAC and the DIT verifies the completeness and accuracy of the data. Upon receipt of the V0 migration data documentation, this test case verifies the capability of the LaRC DAAC to successfully ingest the migration data documentation in all of the six digital text format types. Expected results include the successful transfer of the V0 migration documentation in any of the approved digital text formats (e.g., MS Word).

9.1.3.3 Test Case B090130.030-LaRC DAAC Migration Data/Metadata Validation and Compliance Check

The LaRC DAAC Migration Data/Metadata Validation and Compliance Check test case verifies the capability of the LaRC DAAC to automatically check for transmission errors once the migration data has been received from the V0 DAAC. An automatic examination of the data

header is performed to verify that no irregularities exist in the ingested migration data. The problems discovered during this examination may include the following: data identification, data routing, time-ordering of the data, data gaps, data redundancy, and data quality. The Test method is used to verify that the migration data/metadata validation requirements are satisfied. This test case follows the same test process described in section (9.1.2.4) "LaRC DAAC NOAA ADC Data/Metadata Validation and Compliance Check" with the idea that the data, operations, inputs, and expected results are specific to Migration Data/Metadata holdings at the LaRC DAAC.

9.1.3.4 Test Case B090130.040-LaRC DAAC Migration Metadata and Extraction/ Verification

The LaRC DAAC Migration Metadata Extraction/Verification test case verifies that the LaRC DAAC checks for the presence of a unique granule id in the metadata header. Upon ingest by the LaRC DAAC, metadata is extracted and the data is identified, referenced, and stored. This extracted metadata information may be contained within the data file, file/message associated with the data, or derived directly from the delivered file message. In order to ensure the ability to access the data from permanent storage, this test case verifies the capability of the LaRC DAAC to extract limited metadata (e.g., data set name) for the higher level data. The type of data ingested and the agreed upon attributes list determines the type of verification checks performed on the metadata. The Demonstration and Inspection methods are used to verify that metadata extraction/verification requirements are satisfied. This test case follows the same test process described in section (9.1.2.5) "LaRC DAAC NOAA ADC Metadata Extraction/Verification" with the idea that the data, operations, inputs, and expected results are specific to Migration Data/Metadata holdings at the LaRC DAAC.

9.1.3.5 Test Case B090130.050-LaRC DAAC Migration Data Archiving

The LaRC DAAC Migration Data Archiving test case verifies the capability of the LaRC DAAC to provide storage for the ingested V0 migration data. This migration data consists of the following items: data products, browse data, associated metadata and documentation, ancillary data, and correlative data. The capability of the LaRC DAAC to archive the V0 migration product data, insert the metadata into the inventory, and update the data receipt log, upon completion of the archiving process, is verified in this test case. Metadata information is produced prior to the archiving of the migration data. This information includes: data and time of storage, physical location, data check status, and unique format identifiers. Verification is performed to ensure that this information is produced before the archiving process begins. The Test and Inspection methods are used to verify that the V0 migration data archiving requirements are satisfied. This test case follows the same test process described in section (9.1.2.6) "LaRC DAAC NOAA ADC Data Archiving " with the idea that the data, operations, inputs, and expected results are specific to Migration Data/Metadata holdings at the LaRC DAAC.

9.1.3.6 Test Case B090130.060-LaRC DAAC Migration Data Maintain On-Line Directories

The LaRC DAAC Migration Data Maintain On-Line Directories test case verifies the capability of the LaRC DAAC to update the guide, inventory, and directory databases when guide and inventory data is extracted from the migration metadata. This test case verifies that when the directories are updated an insertion is made into the LaRC DAAC directory. The Test method is used to verify that the directories are updated with the pertinent, required information. This test case follows the same test process described in section (9.1.2.7) "LaRC DAAC NOAA ADC Data Maintain On-Line Directories" with the idea that the data, operations, inputs, and expected results are specific to Migration Data/Metadata holdings at the LaRC DAAC.

9.1.4 LaRC DAAC Reprocessing Request Receipt and Processing Sequence

The LaRC DAAC Reprocessing Request Receipt and Processing Sequence verifies the ability of the LaRC DAAC SCF users to request the reprocessing of CERES, MOPITT, MISR, ACRIM, and SAGE III related standard data products, browse data products, and associated metadata. The capability of the LaRC DAAC to receive from the SCF users reprocessing requests in order to proceed with the regeneration of the CERES, MOPITT, MISR, ACRIM, and SAGE III products is verified in this sequence. For example, a MISR SCF user requests reprocessing of a MISR data product. Upon receipt of the reprocessing request, the LaRC DAAC validates the request, dispatches the new plan for activation, and produces the standard and browse data products, and metadata. When the reprocessing procedure has been successfully completed, this sequence verifies that the LaRC DAAC stores the newly created products on the appropriate data server, notifies the SCF users that the products are ready for QA, and supplies the associated metadata cross references to the data along with the newly reprocessed products. The capability of the LaRC DAAC, once the reprocessed products are released by the SCF QA, to receive and process the updated assessment metadata accordingly is verified in the sequence. Upon completion of the reprocessing QA procedure, this sequence verifies that the SCF users are notified and an update to related directories and inventories is made to reflect the changes.

9.1.4.1 Test Case B090140.010-LaRC DAAC Receipt/Validation of SCF Reprocessing Requests

The LaRC DAAC Receipt/Validation of SCF Reprocessing Requests test case verifies the capability of the LaRC DAAC to receive LaRC SCF users' reprocessing requests for CERES, MOPITT, MISR, SAGE III, and ACRIM standard and browse data products, as well as, associated metadata. A scientist prepares the Reprocessing Request by utilizing a readily available Reprocessing Request Template. The Demonstration method is used to verify that reprocessing request requirements are satisfied.

Inputs for this test case include the information contained in the scientist's Reprocessing Request. The information reported in the Reprocessing Request contains, at a minimum, the following details: reason for request, proposed reprocessing schedule, time and data set range of the request, a list of all the CERES, MOPITT, MISR, SAGE III, and ACRIM products to be generated, the version numbers of the science software and calibration coefficients, and a list of necessary ancillary data. Verification is made by the LaRC DAAC to ensure that all of the

required information is detailed within the Reprocessing Request. In the event pertinent information has been omitted, the LaRC DAAC requests that the scientist request for reprocessing be updated with the correct information and retransmitted. Expected results involve the successful receipt and validation of the scientist's Reprocessing Request at the LaRC DAAC.

9.1.4.2 Test Case B090140.020-LaRC DAAC Generation/Dispatch of SCF Reprocessing Plan

The LaRC DAAC Generation/Dispatch of SCF Reprocessing Plan test case verifies the capability to generate reprocessing plans for CERES, MISR, MOPITT, SAGE III, and ACRIM standard and browse data products. Verification is performed to ensure that the reprocessing plan contains data dependencies, production strategy, and plan information from other applicable DAACs. The Test and Analysis methods are used to verify that reprocessing plan requirements are satisfied. Inputs for this test case include information contained within the reprocessing plan. Information detailed in the reprocessing plan include the following items: a list of process tasks needed to execute each CERES, MISR, MOPITT, MISR, SAGE III, and ACRIM product's reprocessing; estimated schedule for each task; and the order in which tasks are executed. Reprocessing of the above listed products is performed according to specifications listed in the reprocessing plan. In the event discrepancies are detected in the plan, the DIT notifies the originating SCF for the need for retransmission and records the problem in the daily log. Expected results for this test case include the successful generation of the reprocessing plan.

Verification is made to ensure the capability of the LaRC DAAC to receive reprocessing requests at regular time intervals, depending on a previously agreed upon schedule. Upon determination of the reprocessing schedule, the SCF scientist is notified of their request status with the receipt of a Reprocessing Status notice. The reprocessing request only occurs at regular reprocessing periods, for example, the standard processing data is late in arriving causing system slack time. The Test method is used to verify deactivation of the old reprocessing plan and the activation of the new reprocessing plan. Inputs for this test case consist of information contained in both the old and the new reprocessing plans. Verification is performed to ensure that an orderly changeover from the old plan to the new plan occurs without having to interrupt the ongoing reprocessing process. This test case verifies that procedures provided within the reprocessing plan include conditions for continuing with production that is not affected by the newly reprocessed products. Expected results for this test case include the successful generation, dispatch, and changeover of the LaRC DAAC reprocessing plans.

9.1.4.3 Test Case B090140.030-LaRC DAAC Standard and Browse Data Products Reprocessing

The LaRC DAAC Standard and Browse Data Products Reprocessing test case verifies the capability to reprocess Level 1A-3 CERES, MISR, MOPITT, SAGE III, and ACRIM standard and browse data products, and their associated metadata. Data used to initiate the reprocessing procedure include: improved input data, new calibration data, improved calibration data, updated science software, required ancillary data, and the correct version of the science software. This test verifies the capability to reprocess the above listed data products in accordance with the

specifications listed in the reprocessing plan. The Test and Analysis methods are used to verify that requirements related to the reprocessing of data products are satisfied.

Inputs for this test case include the reprocessing plan, the standard and browse data products, and data dependencies that are necessary in order to continue with the reprocessing process. This test verifies that all data dependencies are satisfied by staging the necessary ancillary data prior to the processing of the data. If ancillary data is needed from one of the other DAACs (e.g., MSFC, GSFC, etc.), verification is made to ensure that the data is received prior to continuing the reprocessing process. In the case where all of the required data necessary for processing is not available, the test verifies that the LaRC DAAC suspends processing of the data. When the required data becomes available, the processing plan is re-activated and the process continues. If any errors in data transmission occurred, the LaRC DAAC DIT logs the problems and notifies the applicable ancillary data source to perform internal corrective action.

During execution of the processing plan, verification is performed to ensure that the correct version of science software and calibration coefficients, in addition to, system resources are defined and referenced in the processing plan. This test case verifies the capability of the LaRC DAAC to create Level 1A-3 CERES, MISR, MOPITT, SAGE III, and ACRIM data and browse products, as defined in the reprocessing plan, according to time and data set ranges. The scientist working group determines the priority scheme by which the reprocessing occurs. Verification is performed to ensure the generation of an unique granule identifier, associated metadata, and keyword references for each reprocessed Level 1A-3 data product. The associated metadata is verified to ensure that it provides a logical and technical description of the content, format, and utility of the standard data sets generated. Verification is made to ensure that keywords link the newly created data products to the following: process plans; guide, inventory, and directory information; previously archived documentation; calibration data, science software, instrument, and related documentation; and key organizations and personnel. Once the CERES, MISR, MOPITT, SAGE III, and ACRIM data products have been reprocessed, this test case verifies that the newly created product(s) are stored on the appropriate data server at the LaRC DAAC, the LaRC SCF operational users are notified that the products are ready for QA, and that associated metadata cross references are supplied along with the newly generated products. SCF users are able to receive temporary status of the data stored on the data servers. Expected results involve the successful reprocessing of the CERES, MISR, MOPITT, SAGE III, and ACRIM data and browse products, along with the ability of the LaRC DAAC DIT to track and log all of the processing activities.

9.1.4.4 Test Case B090140.040-LaRC DAAC Standard and Browse Data Products QA Assessment Metadata Receipt/Processing

The LaRC DAAC Standard and Browse Data Products QA Assessment Metadata Receipt/Processing test case verifies the capability of the LaRC DAAC to receive and process the QA assessment performed on the reprocessed CERES, MISR, MOPITT, SAGE III, and ACRIM standard and browse data products, in addition to associated metadata ingested from the SCF. This test verifies that the LaRC DAAC Data Product Quality Staff receives the product QA data from the applicable SCF. The Test and Demonstration methods are used to verify that requirements related to QA assessment receipt and processing are satisfied.

Inputs for this test case include information contained within the scientist's product QA review report. This information includes product ID, QA results, and instructions detailing product storage and processing. This test verifies that the LaRC DAAC Data Product Quality Staff analyses the metadata and proceeds with production according to the information detailed in the processing plan. The data can be either of good or bad quality. If the data is deemed to be of good quality, then the LaRC DAAC stores the metadata into its inventory and the reprocessed data is marked for distribution. On the other hand, if the data is deemed inferior, then the LaRC DAAC marks the data as superseded and it becomes a candidate for eventual deletion or retention. The decision for deletion or retention is based on the disposition of the superseded data and its retention time frame as detailed in the reprocessing request. The LaRC DAAC aborts the reprocessing of the data products if a cancellation notice is received. Otherwise, the LaRC DAAC continues with the reprocessing and stores the reprocessed data along with its metadata in its archive. Verification is made to ensure that a data storage notice is sent to the SCF and that the LaRC DAAC receives distribution status requests from the SCF concerning the CERES, MISR, MOPITT, SAGE III, and ACRIM reprocessed products.

Outputs for this test case include the generation of a data quality assessment report by the LaRC DAAC Data Product Quality Staff. In addition, this test case verifies that all processing activities are tracked and recorded by the operations staff. In the event the product is not reviewed within the allocated QA time, the processing status of the product is updated to reflect a QA time-out and the list of products requiring SCF QA is updated.

9.1.4.5 Test Case B090140.050-LaRC DAAC Reprocessed Data Directories/ Inventories Update and Notification

The LaRC DAAC Reprocessed Data Directories/Inventories Update and Notification test case verifies the capability to update directories and inventories associated with the CERES, MISR, MOPITT, SAGE III, and ACRIM reprocessed standard and browse data products. The Demonstration method is used to verify that all inventories and directories regarding the reprocessed data are updated correctly. Inputs for this test case include the unique data set ID variable for each separate reprocessed data product. This ID variable is used to update the directory and inventory and enables the data products to be accessible to users. Expected results include the successful update of the LaRC DAAC directories and inventories.

This test case verifies the capability of the LaRC DAAC to notify subscribed users that the CERES, MISR, MOPITT, SAGE III, and ACRIM standard and browse data products have been reprocessed. In addition to this reprocessed data, the LaRC DAAC provides users access to metadata on the newly stored data granules. The Test and Demonstration methods are used to verify that users are able to access information concerning the reprocessed data products through the use of the Advertising Service. Inputs for this test case include the metadata and user subscription information. When a user requests a data product that has been reprocessed, this test verifies the capability to provide the newly updated metadata for the reprocessed product. Expected results include the successful notification of users that the reprocessed data is available.

9.1.5 LaRC DAAC On-Demand Processing Sequence

The LaRC DAAC On-Demand Processing Sequence verifies the ability of the LaRC DAAC to receive on-demand requests from users regarding the archived products. This sequence verifies the capability of users to transmit on-demand requests for CERES, MOPITT, MISR, ACRIM, and SAGE III data products from the LaRC DAAC. The LaRC DAAC capability to perform checks to determine whether the request is within a pre configured threshold is verified in this sequence. In the event the threshold is exceeded, the request is deferred until the next plan. Verification is made to ensure that all required inputs are available in order for the on-demand request to be processed. If necessary input data is missing, then a request is put in for it and the request is included in the next plan. The production scheduler is notified that the request has been received and deferred until a later time.

9.1.5.1 Test Case B090150.010-LaRC DAAC On-Demand Processing Request Receipt and Verification

The LaRC DAAC On-Demand Processing Request Receipt and Verification test case verifies the capability to receive requests for On-Demand processing (e.g., standing orders, changes to standing orders, or product requests) and verify that the information contained in the request is complete and accurate. These on-demand processing requests are for CERES, MISR, MOPITT, MISR, and SAGE III data products that are currently archived at the LaRC DAAC. The Test method is used to verify requirements covered in this test case. Inputs for this test case include the information contained within the on-demand request. This information details specific requester information, requested data type, and desired deadline arrival date. The LaRC DAAC receives a request for on-demand processing of a data product that is currently stored within its archive. In the event the request contains deadline conditions that cannot be met at the present time, the LaRC DAAC sends a Reject On-Demand Production Request message indicating requester identification, request status, and the reason for the rejection. Verification is made to ensure that if the request is a priority, every effort is made to include this on-demand processing request into the schedule to accommodate the requester. Expected results include the successful receipt and verification of on-demand processing requests.

9.1.5.2 Test Case B090150.020-LaRC DAAC On-Demand Processing Request Schedule Generation

The LaRC DAAC On-Demand Processing Request Schedule Generation test case verifies the capability to generate schedules reflecting the on-demand requests received for data product processing and generation. The Test method is used to verify requirements related to the processing plan and the product generation schedule. Inputs for this test case consist of the on-demand requests, the current processing plan, and any priorities associated with the requests. Verification is made to ensure that the production scheduler submits a subscription, if one does not already exist, for the on-demand processing request. The data server queries the data base to verify that the data products necessary for generation are available. Upon confirmation that the necessary inputs from the data products are available, a product schedule is generated for all current orders received by the LaRC DAAC. Entries in this product schedule include, at a minimum, the following: product requested for generation, specific science software(s) and

calibration coefficients required to complete the request, specific data set sizes, and any priorities or deadlines that accompany the on-demand processing request. Additionally, a reprocessing plan is generated indicating necessary processing tasks, estimated schedule of each task, and the desired order of execution for each task. If the necessary data products are not available, a Reject On-demand Production Request message is sent to the data server indicating the absence of the necessary inputs for processing. Similarly, if the on-demand request is not capable of being processed and/or scheduled at the current time, a Reject Processing Request message is sent to the data server and the request is postponed until the next appropriate plan. When the on-demand processing request exceeds a pre-determined threshold value, this request is set aside and placed in the next available plan. Expected results include the successful generation of production schedules and processing plans.

9.1.5.3 Test Case B090150.030-LaRC DAAC On-Demand Processing and Notification

The LaRC DAAC On-Demand Processing and Notification test case verifies the capability to process users' requests for data products and notify the users upon completion of the processing procedure. The Test method is used to verify requirements covered in this test case. Inputs for this test case include the data product information described in the on-demand request, the production schedule, and any deadlines, if applicable. Once all of this information has been collected, the processing procedure begins and the new request is included in the updated "dynamic" active plan. Upon completion of the processing of the on-demand request, the processor sends a Complete Notification message for all the executables related to the on-demand request. An On-Demand Production Status message is sent to the data server confirming that the on-demand processing request status is "successful" and the request has been dispatched to the requester. Expected results include the successful processing of on-demand processing requests and requester notification of processing status.

9.1.6 LaRC DAAC Non-Standard Product Receipt Sequence

The LaRC DAAC Non-Standard Product Receipt Sequence verifies the ability of operational users to send non-standard products for mission related processing. Users transmit these data products either electronically or on some other form of media (e.g., mail). The type of data received consists of correlative and ancillary data, documents, science software, and instrument history logs from other DAACs, SCFs, and NOAA. This sequence verifies the capability to ingest test plans, data, and procedures in order to facilitate the checkout of new science software. This sequence of tests verifies the ability to perform the following actions: ingest the data, following the data loading instructions, account for and validate the data, store the data products, and notify the sender that the data has been archived.

9.1.6.1 Test Case B090160.010-LaRC DAAC Ingest and Archive Non-Standard Products from Other DAACs

The LaRC DAAC Ingest and Archive Non-Standard Products from other DAACs test case verifies the capability to ingest expected non-standard data products from one or more of the other product generating DAACs. The other DAACs involved are MSFC, GSFC, EDC, JPL, and

NSIDC. Verification is also made to ensure the capability of the LaRC DAAC to validate this ingested non-standard data. This test verifies that a notice is sent to the provider of the ingested data acknowledging archiving of the non-standard products. The Test method is used to verify that requirements related to the ingesting of non-standard data are satisfied.

Inputs for this test case consist of representative non-standard data products ingested from the other five applicable DAACs (MSFC, GSFC, JPL, NSIDC, and EDC). These data products include one or more of the following items: correlative and ancillary data, documents, science software and instrument history logs, procedures for loading the received data onto ECS media, and procedures for recording and properly distributing information regarding the availability of the newly loaded data. Expected results include the successful completion of the ingest and archiving of the non-standard data products ingested from one of the other applicable DAACs.

9.1.6.2 Test Case B090160.020-LaRC DAAC Ingest and Archive Non-Standard Products from SCFs

The LaRC DAAC Ingest and Archive Non-Standard Products from SCFs test case verifies the capability to ingest expected non-standard data products from each of the applicable SCFs. The following SCFs interface with the LaRC DAAC: CERES, MISR, ACRIM, MOPITT, and SAGE III. Verification is also made to ensure the capability to validate and archive the ingested non-standard data. This test verifies that upon completion of the archiving process, a notice is sent to the provider of the ingested data acknowledging archiving of the non-standard data products. The Test method is used to verify that non-standard data ingest requirements are satisfied.

Inputs for this test case consist of representative non-standard data products ingested from each of the applicable SCFs (e.g., CERES). Correlative data, ancillary data, documents, science software and instrument history logs, or a combination, are contained in these non-standard data products. These inputs specify data products stored on various forms of media, either electronic or hard, that are transmitted by a SCF to the LaRC DAAC for processing. Specifications are also made for oral transmissions between ECS components (e.g., LaRC DAAC and the CERES SCF).

Outputs for this test case consist of data product dumps which are the results of the example data products ingested from each SCF. A written, bulletized description, detailing the ingest procedures for the example inputs, accompanies each of these data product dumps. The following items are included in this report: receiving component procedures for ingesting the inputs; procedures for loading the received data on media; procedures for recording and properly distributing information concerning the availability of the newly added data; fulfilling storage requirements for each received data product; and properly informing each of the ingest data providers. A timeline is included in the description. The timeline details the time intervals and total time required in order to complete the ingest process. Finally, an analysis report is generated assessing the success of the procedures involved in the management of the SCF data transmission examples relative to LaRC DAAC functional and performance requirements.

9.1.6.3 Test Case B090160.030-LaRC DAAC Ingest and Archive Non-Standard Products from NOAA ADC

The LaRC DAAC Ingest and Archive Non-Standard Products from NOAA ADC test case verifies the capability to ingest non-standard data products from the NOAA ADC. Verification is also made to ensure the LaRC DAAC capability to validate and archive this ingested NOAA non-standard data. This test verifies that upon completion of the archiving process, a notice is sent to the provider of the ingested data acknowledging archiving of the non-standard data products. The Test method is used to verify that requirements related to the ingesting of non-standard data are satisfied.

Inputs for this test case consist of representative non-standard data products, ingested from NOAA, including correlative and ancillary data, documents, science software, and instrument history logs. These inputs are specific data products stored on various forms of approved media, either electronic or hard, that are transmitted by NOAA to the LaRC DAAC. Specifications are also made for oral transmissions between the LaRC DAAC and the NOAA ADC.

Outputs for this test case consist of data product dumps which are the results of the example data products ingested from the NOAA ADC. A written, bulletized description, detailing the ingest procedures for the example inputs, accompanies each of these data product dumps. The following items are included in this report: receiving component procedures for ingesting the inputs; procedures for loading the received data on media; procedures for recording and properly distributing information concerning the availability of the newly added data; fulfilling storage requirements for each ingested data product; and properly informing each of the ingest data providers. Included in the description is a timeline detailing the time intervals and total time required in order to complete the ingest process. Finally, an analysis report is generated assessing the status of the LaRC DAAC procedures involved in the management of the NOAA ADC data transmission examples relative to LaRC DAAC functional and performance requirements.

9.1.7 LaRC DAAC Science Data Production Software Updates and Calibration Parameters Receipt Sequence

The LaRC DAAC Science Data Production Software Updates and Calibration Parameters Receipt Sequence verifies the ability of the Science Software Integration and Test Team (SSITT) to log, ingest, generate status reports and archive the science data production software that is delivered from the SCF. The calibration parameters are included in the science software packages. The LaRC DAAC is responsible for updates to the science data production software relating to CERES, MOPITT, MISR, SAGE III, and ACRIM data products. The transmission of the software is initiated when the SCF science investigator contacts the SSITT manager to coordinate and make arrangements to have the software update package transferred electronically for integration and testing purposes.

9.1.7.1 Test Case B090170.010-LaRC DAAC Science Data Production Software Updates Installation

The LaRC DAAC Science Data Production Software Updates Installation test case verifies the installation of the science software updates. This updated science software is related to science data production software used to produce CERES, MISR, MOPITT, SAGE III, and ACRIM data products. This test verifies that the LaRC DAAC SSITT accurately coordinates both internal and external communications regarding the issues and impacts that are produced by each newly updated science software package. The Inspection method is used to verify that requirements related to science software updates installation are satisfied.

Inputs for this test case consist of the delivered updated software package and its contents. The software package contains the following items: a configuration list, software programs, test data, calibration and coefficient data, and associated documentation. Upon delivery confirmation by the SSITT, the delivery information is logged into the system software delivery file and the SCF receives a message indicating acknowledgment of delivery. Next, the SSITT inspects the updated software package to verify that the contents are complete and accurate. In the event information is missing, a request for re-transmission is initiated. This test verifies the capability to accept update software packages that include a POSIX-compliant representation of science data production software. The data is delivered into the system through the configuration management (CM) process. Once the CM process has been completed, the data is made operational in order for the LaRC DAAC SSITT to proceed with the science software integration and test activities.

Outputs for this test case consist of a history file that is updated with all of the necessary delivery and configuration management information. This pertinent information includes software size, required resources, associated documentation, data handling standard, operation compatibility, and required metadata outputs. The SSITT generates a series of reports, related to the information reported in the history file, following the integration and test activities. These reports are reviewed by the SSITT for completeness and accuracy.

9.1.7.2 Test Case B090170.020-LaRC DAAC Science Data Production Software Reporting

The LaRC DAAC Science Data Production Software Reporting test case verifies that systems engineers, managers, and general science users accomplish the generation of site specific software reports in a prompt and accurate manner. These reports detail information concerning the CERES, MISR, MOPITT, SAGE III, and ACRIM data products software that has been updated. The Inspection method is used to verify that report generation requirements are satisfied.

Inputs for this test case include science data production software history and audit information, test schedules, and test results. This test case verifies the ability of the LaRC DAAC to submit requests for reports, using the inputs listed above, to the system operator. In order to request this information, the SSITT needs access to the specifications and schedules for required science software related reports sent or received by the site under test. Master database reports relating science software data sets to processing science software and science software/calibration test

reports are included in these specifications. The SSITT reviews these specifications and schedules for compliance with system level schedules and report format requirements. An output report, generated to inform the SSITT of the report request status, evaluates the site's schedule and format requirements versus ECS specifications.

Formats include written specification of the LaRC DAAC configuration control and their reporting of requirements to the SMC. These specifications include the schedule and format for delivering information to the SMC. The SSITT reviews the data formats for transmission of the CM data to the SMC. They are reviewed for format correctness to include such data items as source code, version number, author, benchmark test procedures, test data and results, date and time of operational installation, compiler identification and version, and final science software documentation.

9.1.7.3 Test Case B090170.030-LaRC DAAC Science Data Production Software Archiving and Retention

The LaRC DAAC Science Data Production Software Archiving and Retention test case verifies the ability of the systems engineers, managers, and general science users to access and maintain a central database storage of the science data production software (e.g., CERES). This test verifies the ability of the SSITT personnel and other users to efficiently store and retrieve executables and calibration coefficients related to science data production software. The Inspection method is used to verify that science data production software archiving and retention requirements are satisfied.

Inputs for this test case include volume estimates for retention of the CERES, MISR, MOPITT, SAGE III, and ACRIM products, as well as, storage availability specifications for retaining these products. This test verifies the ability of the system managers to maintain specifications for the LaRC DAAC database procedures. These procedures involve storing, retaining, and retrieving science data production software executables and calibration coefficients.

A comparison of current and future storage volume and processing specifications for the products is verified in this test. Outputs include a report detailing the comparison results and identifying risk factors. Upon completion of storage archival, the SCF responsible for delivery of the science software receives a storage notice.

9.1.8 LaRC DAAC Coordinate Processing Plans and Schedules Sequence

The LaRC DAAC-ECS Coordinate Processing Plans and Schedules Sequence verifies that operational users receive updated schedules and reconfiguration directives from the SMC with regards to mission related planning and processing. The ability to coordinate, with the SMC, the data processing plans and schedules through the use of software tools, either manually or automatically, is verified in this sequence. The capability of the LaRC DAAC users to receive reconfiguration directives from the SMC regarding scheduling priorities, resolving schedule conflicts, and operational assignments is verified in this sequence.

9.1.8.1 Test Case B090180.010-LaRC DAAC Coordinate Updates to SMC Processing Plans and Schedules

The LaRC DAAC Coordinate Updates to SMC Processing Plans and Schedules test case verifies the capability to provide its operations staff access to sufficient procedures detailing coordination processes for SMC processing plans and schedules. These procedures are manual, automated, or a combination of the two. Verification by the Inspection method is used to ensure that requirements related to updating the SMC processing plans and schedules are satisfied.

Inputs necessary for this test case include distinctive real or simulated processing and reconfiguration directives for mission related planning and processing. The following reconfiguration directives are included in the test data sets: update schedule priorities, resolve schedule conflicts, and request changes in operational assignments. Requests for both standard and erroneous directives for processing plans and schedule updates are included in the input data sets.

This test case involves the inspection of the procedures pertaining to the coordination of the processing plans and updates to schedules. The procedures for handling the updates to the SMC plans and schedules are validated by both automatic and manual aids. An output report is produced identifying, detecting, and processing erroneous plan and schedules updates from the SMC.

9.2 ECS at the MSFC DAAC Data Ingest Operations Scenario

The ECS at the MSFC DAAC Data Ingest Operations Scenario describes the activities performed by the ECS at the MSFC DAAC involving the ingesting of mission related instrument data from external sources. These activities include the following: planning for and receiving Level 0 - Level 4 data, validating, processing, archiving, and reprocessing of this Level 0 - 4 data. For the remainder of this document, the term "MSFC DAAC" is used to reference "ECS at the MSFC DAAC".

This scenario verifies the capability of the MSFC DAAC to ingest LIS Level 0 science, correlative, ancillary, and definitive data from the SDPF. The capability to ingest LIS Level 0 data, format the Level 0 data products, schedule the data for processing, and determine the resources necessary in order to produce higher level data products is verified in this scenario. This scenario verifies the capability, at each phase of processing, to perform quality checks that ensure the following: presence of required fields in the data, granule size is within limits, and proper authorization is given to process and store the data. The capability to archive multiple versions of selected archive data and the incorporation of a fully integrated archive management system is verified in this scenario.

The MSFC DAAC capability to ingest, format, validate, and archive higher level data products is verified in this scenario. This scenario verifies the capability to perform the following actions: receive data arrival notices and higher level data from the DAACs; verify that the data receipt process is complete and header information is accurate; extract metadata and verify the information; archive the metadata; and maintain an on-line directory. This scenario verifies that a status, indicating the success of failure of metadata and data consistency checks, is generated

and sent to the provider of the ingested data (e.g., TSDIS). The capability to check for the presence of a granule id and that a metadata guide and inventory is present to reference related science data, such as calibration data, navigation data, processing science software, and QA validation data is also verified. This scenario verifies the capability to maintain data storage inventories defining the physical location of files and provides an inventory system capable of uniquely identifying each data granule and tracking the physical location of each granule.

This scenario verifies the capability of the MSFC DAAC to reprocess LIS data and provide data to TSDIS for reprocessing. The capability to receive a Data Request from the ECS Data Ingest Technician (DIT) indicating the archived PR and TMI TRMM data that is needed to complete the reprocessing activity is verified in this scenario. The capability to replace the old processed data products with the new data products and update related directories and inventory files is verified in this scenario.

The capability of the MSFC DAAC to accept and process on-demand requests from users in order to process data products that are currently archived by the ECS. This scenario verifies the integration of a user interface, pertaining to processing schedules and orbital models, for help on products archived by the ECS.

Additionally, this scenario verifies that the MSFC DAAC fully supports the following: TRMM mission operations; LIS Level 0 data ingest, production, archive, distribution, and science software integration and test; V0 data migration and interoperability; SSM/I and GPCP ingest and archive; and PR, TMI, and GV data ingest, archive, and distribution.

9.2.1 MSFC DAAC Level 0 Data Receipt Sequence

The MSFC DAAC Level 0 Data Receipt Sequence verifies the capability to produce LIS Level 1 through Level 4 data from the LIS instrument on board the TRMM spacecraft. The capability to ingest LIS Level 0, ancillary, and calibration data from the SDPF is verified in this sequence. Upon receipt of the data, verification is performed to ensure that the MSFC DAAC updates the data receipt log; validates and formats the data; generates and archives higher level LIS data products; and inserts the metadata into the directory, guide, and inventory databases.

9.2.1.1 Test Case B090210.010-MSFC DAAC Level 0 Data Receipt, Validation, and Formatting

The MSFC DAAC Level 0 Data Receipt, Validation, and Formatting test case verifies the capability to ingest Level 0, ancillary, and calibration data from the LIS instrument. The Demonstration method is used to verify that Level 0 data ingest requirements are satisfied. This test case verifies the capability to validate and format the ingested LIS data that is used to generate the higher level (Level 1-4) data products. The Analysis and Inspection methods are used to verify that validation, format, and product generation requirements are satisfied. This test case verifies the ability to receive, validate, and format the Level 0 LIS data and generate the higher level products. This test case follows the same test process described in section (9.1.1.1) "LaRC DAAC Level 0 Data Receipt, Validation, and Formatting" with the idea that the data, operations, inputs, and outputs are specific to the MSFC DAAC.

9.2.1.2 Test Case B090210.020-MSFC DAAC Metadata and Level 1-4 Data Processing

The MSFC DAAC Metadata and Level 1-4 Data Processing test case verifies the capability to extract and analyze LIS associated metadata and generate LIS Level 1-4 data products. The Analysis method is used to verify that metadata generation and higher level processing requirements are satisfied. This test case verifies the DIT's ability to analyze metadata, perform data consistency checks, and review generated analysis and status reports for completeness and accuracy. This test case follows the same test process described in section (9.1.1.2) "LaRC DAAC Metadata and Level 1-4 Data Processing" with the idea that the data, operations, inputs, and outputs are specific to the MSFC DAAC.

9.2.1.3 Test Case B090210.030-MSFC DAAC Archive LIS Data Products

The MSFC DAAC Archive LIS Data Products test case verifies the capability to archive the LIS Level 0 and generated Level 1-4 data products. The Test and Demonstration methods are used to verify that Level 0 and generated Level 1-4 data products archive requirements are satisfied. This test case verifies the ability to archive the newly generated LIS data products by following the data processing plans specific to the archiving process. The DIT reviews the standard data summaries and analysis reports for completeness and accuracy. This test case follows the same test process described in section (9.1.1.3) "LaRC DAAC Archive Data Products" with the idea that the data, operations, inputs, and outputs are specific to the MSFC DAAC.

9.2.2 MSFC DAAC Level 1A-3 Data Receipt from the TSDIS Sequence

The MSFC DAAC Level 1A-3 Data Receipt from the TSDIS Sequence verifies the capability to store higher level standard products (Level 1A - Level 3), associated metadata, and documentation ingested from TSDIS. The capability to receive data availability notices, indicating the data to be ingested, standard products generated at the TSDIS, metadata, as well as browse data, GV data, science software, and documentation related to the PR, TMI, and GV products is verified in this sequence. Verification is performed to ensure that all ingested higher level data is validated, accounted for, and permanently archived. The ability of the TSDIS users to receive status information on their ingested products is also verified in this sequence.

9.2.2.1 Test Case B090220.010-MSFC DAAC Data Availability Notice Receipt

The MSFC DAAC Data Availability Notice Receipt test case verifies the capability to receive data availability schedules and data delivery status information from the TSDIS regarding TSDIS data sets. The data availability schedules indicate the times when the TSDIS data sets are available for ingest. The TSDIS data sets consist of a combination of the PR, TMI, and GV data. The Demonstration method is used to verify that requirements related to data availability schedules are satisfied. Inputs for this test case consist of the information contained within the data availability schedules. This data includes available data types and data delivery information. The DIT reviews the data availability schedule and prepares for the arrival of the data. Expected results include the receipt of the data availability schedule from the TSDIS.

9.2.2.2 Test Case B090220.020-MSFC DAAC Ingest/Accountability of TRMM PR, TMI, and GV Data/Metadata

The MSFC DAAC Ingest/Accountability of TRMM PR, TMI, and GV Data/Metadata test case verifies the capability to ingest and account for TRMM related combined PR, GV, and TMI data products from the TSDIS. These data products include: Level 1A data, TRMM Level 1B-Level 3B standard products, TRMM browse products, science software, correlative data, and metadata. The Test method is used to verify that TRMM ingest requirements are satisfied. Inputs for this test case include the information regarding the available data products listed in the data availability notice (mentioned in section 9.2.2.1). The DIT reviews the data availability notice and verifies that all of the data was ingested. In the event requested data is missing, the DIT notifies the TSDIS and requests retransmission of the data. Expected results include the successful ingest of the TRMM PR, GV, and TMI data products.

This test case verifies the capability to account for the TRMM PR, TMI, and GV data ingested. Verification is made to ensure that the ingested data is complete and accurate. The Test method is used to verify requirements related to the accountability of the ingested data. Inputs for this test case include the data availability notice, the ingested data, and the data receipt log. The DIT reviews the data availability notice and verifies that all of the data contained in the notice is present and accounted for. The DIT verifies that the data is complete and accurate and that no errors occurred during the transmission of the data. If errors occurred during the transmission of the data, the DIT requests retransmission from the TSDIS for valid and accurate data. Upon successful accounting of the data, the DIT updates the data receipt log with information detailing the newly ingested data. Expected results include the successful accountability of the ingested TRMM PR, GV, and TMI data products.

9.2.2.3 Test Case B090220.030-MSFC DAAC Ingest TRMM PR, TMI, and GV Documentation and Validation

The MSFC DAAC Ingest TRMM PR, TMI, and GV Documentation and Validation test case verifies the capability to ingest and validate TSDIS provided TRMM related documentation. This documentation describes Level 1- Level 3 data, science software, and calibration data related to the combined PR, TMI, and GV data products. The Test method is used to verify that documentation ingest requirements are satisfied. Inputs for this test case consist of the documentation references contained in the data availability notice and the TRMM related documentation accompanying the ingested TSDIS provided data. The DIT verifies that the requested TRMM documentation is ingested. In the event the documentation is not received, the DIT requests that TSDIS retransmit the documentation. Expected results include the successful transfer and ingest of the TRMM PR, TMI, and GV related documentation.

This test case verifies the capability to validate the ingested TRMM PR, TMI, and GV related documentation. This documentation is ingested in various digital text formats. These digital text formats include: ASCII text, Microsoft WORD, HTML, Interleaf, Postscript, and WordPerfect. The Demonstration method is used to verify that the DIT reviews the associated documentation in one of the formats listed above. Inputs for this test case include the TRMM documentation in one of the digital text formats, for example, MS WORD. The DIT downloads this

documentation (onto a computer that has MS WORD software) and verifies whether they are able to read the document, accurately and completely, on their computer screen. Expected results include the successful translation and review by the DIT of the MS WORD document (in this example).

9.2.2.4 Test Case B090220.040-MSFC DAAC Data/Metadata Validation and Compliance Check

The MSFC DAAC Data/Metadata Validation and Compliance Check test case verifies the capability to perform validation checks on the higher level combined PR, TMI, and GV data products ingested from the TSDIS. During this validation process, the data header is automatically examined to ensure that no anomalies are present in the ingested data. These data validation checks consist of: data identification, data routing, time-ordering of the data, data gaps, data redundancy, and data quality. The Test method is used to verify that requirements related to the validation of data and metadata are satisfied. This test case follows the same test process described in section (9.1.2.4) "LaRC DAAC NOAA ADC Data/Metadata Validation and Compliance Check" with the idea that the data, operations, inputs, and expected results are specific to the MSFC DAAC.

9.2.2.5 Test Case B090220.050-MSFC DAAC Metadata Extraction/Verification

The MSFC DAAC Metadata Extraction/Verification test case verifies the capability to extract and verify metadata for the combined TRMM PR, TMI, and GV data products. The Demonstration and Inspection methods are used to verify this test case. The capability to check for the presence of a unique granule id in the metadata header is verified. Upon ingest, metadata is extracted and the data is identified, referenced, and stored. This metadata is extracted from information contained within the data file, file/message associated with the data, or derived directly from the delivered file message. To ensure the accessibility of this data from permanent archive, this test verifies the capability to extract a limited amount of metadata. This information includes data set name, instrument name, observation time, and granule id. This test case follows the same test process described in section (9.1.2.5) "LaRC DAAC NOAA ADC Metadata Extraction/Verification" with the idea that the data, operations, inputs, and expected results are specific to the MSFC DAAC.

9.2.2.6 Test Case B090220.060-MSFC DAAC TSDIS Data Archiving

The MSFC DAAC TSDIS Data Archiving test case verifies the capability to: archive the combined PR, TMI, and GV higher level processed data products, insert the metadata into the inventory, and update the data receipt log upon completion of the data archiving process. This test verifies the capability to provide storage for the following TRMM PR, TMI, and GV data: associated correlative, ancillary, and calibration data sets, as well as, metadata; Level 1 - Level 3 equivalent data products; documents; and science software. The Test and Inspection methods are used to verify that requirements related to higher level processed data archiving are satisfied. This test case follows the same test process described in section (9.1.2.6) "LaRC DAAC NOAA ADC Data Archiving" with the idea that the data, operations, inputs, and expected results are specific to the MSFC DAAC.

9.2.2.7 Test Case B090220.070-MSFC DAAC Maintain On-Line Directories

The MSFC DAAC Maintain On-Line Directories test case verifies that guide, inventory, and directory databases are updated and an insertion is made into the directory when this information is extracted from the PR, TMI, and GV data product related metadata. Three levels of user accessible metadata are maintained in the MSFC DAAC. These three levels are Directory, Guide, and Inventory. The Test method is used to verify that the appropriate information is updated and inserted into the MSFC DAAC directory, guide, and inventory. This test case follows the same test process described in section (9.1.2.7) "LaRC DAAC NOAA ADC Data Maintain On-Line Directories" with the idea that the data, operations, inputs, and expected results are specific to the MSFC DAAC.

9.2.3 MSFC DAAC Version 0 Data Receipt Sequence

The MSFC DAAC Version 0 Data Receipt Sequence verifies the capability to ingest migration V0 data (static or operational) from the V0 MSFC DAAC. Static data is data which is already archived at the V0 DAAC, where as operational data is data which is produced by a DAAC V0 processor. This sequence verifies the capability to receive static data related migration data products, browse data, associated metadata and documentation, ancillary and correlative data from the V0 DAAC. In addition, the capability to ingest operational data products, browse data, and associated metadata from the DAAC V0 processor, according to an agreed upon schedule, is verified in this sequence. Verification is performed to ensure the capability to validate, account for, check, and permanently store V0 data, and also, send status information to the V0 DAAC users regarding their ingested products.

9.2.3.1 Test Case B090230.010-MSFC DAAC Ingest/Accountability of V0 Data/ Metadata from the V0 DAAC

The MSFC DAAC Ingest/Accountability of V0 Data/Metadata from the V0 DAAC test case verifies the capability to ingest migration metadata; data products; and ancillary, correlative, and browse data from the V0 DAAC. Verification is also made to ensure that the ingested migration data is complete, accurate, and accounted for. Two types of migration data exist: static and operational. The Test method is used to verify that data/metadata ingest and accountability requirements are satisfied. This test case verifies the receipt and accountability of the V0 data from the V0 DAAC and follows the same test process described in section (9.1.3.1) "LaRC DAAC Ingest/Accountability of V0 Data from the V0 DAAC " with the idea that the data, operations, inputs, and expected results are specific to the MSFC DAAC.

9.2.3.2 Test Case B090230.020-MSFC DAAC Ingest Migration Documentation and Validation

The MSFC DAAC Ingest Migration Documentation and Validation test case verifies the capability to ingest documentation related to the V0 migration data products. This documentation is formatted in one of the following digital text formats: ASCII text, Microsoft WORD, HTML, Interleaf, Postscript, and WordPerfect. The Test method is used to verify that requirements related to migration data documentation ingest and validation are satisfied. This test case verifies the ingest and validation of V0 migration data documentation and follows the

same test process described in section (9.1.3.2) "LaRC DAAC Ingest Migration Documentation and Validation " with the idea that the data, operations, inputs, and expected results are specific to the MSFC DAAC.

9.2.3.3 Test Case B090230.030-MSFC DAAC Migration Data/Metadata Validation and Compliance Check

The MSFC DAAC Migration Data/Metadata Validation and Compliance Check test case verifies the capability to perform an automatic examination of the data header to check for anomalies in the ingested migration data. The capability to perform validation and compliance checks on the migration data/metadata ingested from the V0 DAAC is verified in this test case. A status report is generated, indicating the success or failure, of the data/metadata consistency checks. The Test method is used to verify that requirements related to the validation and compliance checking of migration data/metadata are satisfied. This test case verifies the validation and compliance check of V0 migration data and follows the same test process described in section (9.1.2.4) "LaRC DAAC NOAA ADC Data/Metadata Validation and Compliance Check " with the idea that the data, operations, inputs, and expected results are specific to Migration Data/Metadata holdings at the MSFC DAAC.

9.2.3.4 Test Case B090230.040-MSFC DAAC Migration Metadata Extraction/ Verification

The MSFC DAAC Migration Metadata Extraction/Verification test case verifies the capability to check for the presence of a unique granule id in the metadata header. Once the ingest process is complete, metadata is extracted and the data is identified, referenced, and stored. The Demonstration and Inspection methods are used to verify that metadata extraction/verification requirements are satisfied. This test case verifies the MSFC DAAC extraction and verification of metadata and follows the same test process described in section (9.1.2.5) "LaRC DAAC NOAA ADC Metadata Extraction/Verification " with the idea that the data, operations, inputs, and expected results are specific to Migration Data/Metadata holdings at the MSFC DAAC.

9.2.3.5 Test Case B090230.050-MSFC DAAC Migration Data Archiving

The MSFC DAAC Migration Data Archiving test case verifies the capability to provide storage for the following types of V0 migration data: data products, browse data, associated metadata and documentation, ancillary data, and correlative data. Verification is performed to ensure the capability to archive the V0 migration product data, insert the metadata into the inventory, and update the data receipt log. The Test and Inspection methods are used to verify that V0 migration data archiving requirements are satisfied. This test case verifies the MSFC DAAC archiving of the V0 migration data and follows the same test process described in section (9.1.2.6) "LaRC DAAC NOAA ADC Data Archiving " with the idea that the data, operations, inputs, and expected results are specific to Migration Data/Metadata holdings at the MSFC DAAC.

9.2.3.6 Test Case B090230.060-MSFC DAAC Migration Data Maintain On-Line Directories

The MSFC DAAC Migration Data Maintain On-Line Directories test case verifies the capability to update the guide, inventory, and directory databases when guide and inventory data is extracted from the migration metadata. The Test method is used to verify that the directories are updated with the correct information. This test case verifies the MSFC DAAC update of directories and follows the same test process described in section (9.1.2.7) "LaRC DAAC NOAA ADC Data Maintain On-Line Directories " with the idea that the data, operations, inputs, and expected results are specific to Migration Data/Metadata holdings at the MSFC DAAC.

9.2.4 MSFC DAAC Reprocessing Request Receipt and Processing Sequence

The MSFC DAAC Reprocessing Request Receipt and Processing Sequence verifies the MSFC DAAC SCF user's ability to request the reprocessing of LIS related standard data products, browse data products, and associated metadata. This sequence verifies the capability of the MSFC DAAC to receive reprocessing requests from the SCF in order to initiate the regeneration of the LIS products. Upon receipt of the reprocessing request, the MSFC DAAC validates the request, dispatches the new plan for activation, and produces the LIS standard and browse data products, including associated metadata. Upon successful completion of the reprocessing of the LIS data products, this sequence verifies that the MSFC DAAC stores the newly created products, notifies the SCF users of the availability and readiness of the products for QA, and supplies the associated metadata cross references to the data along with the new output products. Once the SCF QA releases the reprocessed LIS products, the capability to receive and process the updated assessment metadata is verified in this sequence. SCF users are notified and related directories and inventories are updated to reflect the changes.

9.2.4.1 Test Case B090240.010-MSFC DAAC Receipt/Validation of SCF Reprocessing Requests

The MSFC DAAC Receipt/Validation of SCF Reprocessing Requests test case verifies the capability to receive SCF users' reprocessing requests for LIS standard and browse data products, in addition to, associated metadata. A scientist prepares the Reprocessing Request by utilizing a readily available Reprocessing Request Template. The Demonstration method is used to verify that reprocessing request requirements are satisfied. This test case follows the same test process described in section (9.1.4.1) "LaRC DAAC Receipt/Validation of SCF Reprocessing Requests" with the idea that the data, operations, inputs, and expected results are specific to the MSFC DAAC.

9.2.4.2 Test Case B090240.020-MSFC DAAC Generation/Dispatch of SCF Reprocessing Plan

The MSFC DAAC Generation/Dispatch of SCF Reprocessing Plan test case verifies the capability to generate reprocessing plans for LIS data products. Verification is performed to ensure that the reprocessing plan contains data dependencies, production strategy, and plan information from other applicable DAACs. The Test and Analysis methods are used to verify that reprocessing plan requirements are satisfied. In addition, this test case verifies the

capability to receive reprocessing requests at regular time intervals according to a previously agreed upon schedule. The Test method is used to verify that the old plan is deactivated and replaced with the new reprocessing plan. This test case follows the same test process described in section (9.1.4.2) "LaRC DAAC Generation/Dispatch of SCF Reprocessing Plan" with the idea that the data, operations, inputs, and expected results are specific to the MSFC DAAC.

9.2.4.3 Test Case B090240.030-MSFC DAAC Standard and Browse Data Products Reprocessing

The MSFC DAAC Standard and Browse Data Products Reprocessing test case verifies the capability to reprocess Level 1A - Level 3 LIS standard and browse data products and their associated metadata. The reprocessing of data is caused by one or more of the following items: improved input data, new calibration data, improved calibration data, updated science software, required ancillary data, and the correct version of the science software. Verification is performed to ensure the capability to perform reprocessing of the LIS data products in accordance with the reprocessing plan. The Test and Analysis methods are used to verify that requirements related to the reprocessing of data products are satisfied. This test case follows the same test process described in section (9.1.4.3) "LaRC DAAC Standard and Browse Data Products Reprocessing" with the idea that the data, operations, inputs, and expected results are specific to the MSFC DAAC.

9.2.4.4 Test Case B090240.040-MSFC DAAC Standard and Browse Data Products QA Assessment Metadata Receipt/Processing

The MSFC DAAC Standard Data Products QA Assessment Metadata Receipt/Processing test case verifies the capability to receive and process the QA assessment performed on the LIS standard and browse data products and associated metadata. This test verifies the receipt of the product QA from the designated SCF. The Test and Demonstration methods are used to verify that requirements related to QA assessment receipt and processing are satisfied. This test case follows the same test process described in section (9.1.4.4) "LaRC DAAC Standard and Browse Data Products QA Assessment Metadata Receipt/Process" with the idea that the data, operations, inputs, and expected results are specific to the MSFC DAAC.

9.2.4.5 Test Case B090240.050-MSFC DAAC Reprocessed Data Directories/ Inventories Update and Notification

The MSFC DAAC Reprocessed Data Directories/Inventories Update and Notification test case verifies the capability to update directories and inventories associated with the LIS reprocessed data. The Demonstration method is used to verify that all inventories and directories regarding the reprocessed data are updated correctly. This test case verifies the capability to notify subscribed users, via the Advertising Service, that the LIS standard and browse data products have been reprocessed. Verification is made to ensure that the users are provided access to metadata on the newly stored data granules. The Test and Demonstration methods are used to verify that users are able to access information concerning the reprocessed LIS data products via the Advertising Service. This test case follows the same test process as described in section

(9.1.4.5) "LaRC DAAC Reprocessed Data Directories/Inventories Update and Notification" with the idea that the data, operations, inputs, and expected results are specific to the MSFC DAAC.

9.2.5 MSFC DAAC TSDIS Reprocessing Support Sequence

The MSFC DAAC TSDIS Reprocessing Support Sequence verifies the capability to distribute archived TSDIS TRMM data products and ancillary data to TSDIS so the data can be reprocessed. The capability to make electronic deliveries of archived TRMM PR, TMI, and GV data to the TSDIS is verified in this sequence. Verification is performed to ensure the capability to extract the archived PR, TMI, and GV data from the data server and distribute the data to the TSDIS in order to be reprocessed.

This sequence verifies the capability of the MSFC DAAC to ingest reprocessed PR and TMI data from the TSDIS. Verification is performed to ensure that the MSFC DAAC performs the following actions: updates the data receipt log, data checks for consistency, extracts metadata, updates the metadata, stages the data for storage, and sends a data check status to the TSDIS.

9.2.5.1 Test Case B090250.010-MSFC DAAC TSDIS Data Requests Receipt/ Validation

The MSFC DAAC TSDIS Data Requests Receipt/Validation test case verifies the capability to support the TSDIS in the reprocessing of PR, TMI, GV, and required ancillary data archived. This test verifies the capability to receive a Data Request notice from TSDIS concerning its data holdings. This notice contains requests for the following: Level 1A - Level 3 data products, metadata, browse data, science software, associated documentation, GV, SSM/I ancillary data, GOES Precipitation Index (GPI), and Global Precipitation Climatology Project (GPCP). The Test method is used to verify the receipt of the Data Request notices. Inputs for this test case include information detailing the data products and documentation contained within these data notices. The DIT reviews the data request notices and verifies that the information is complete and accurate. The DIT verifies that the request contains, at a minimum, the following: data set type, begin and end times for the data, and all information that is necessary for proper archival extraction. Expected results include the successful receipt and validation of the Data Request notice by the DIT.

9.2.5.2 Test Case B090250.020-MSFC DAAC Archived TRMM Delivery to TSDIS

The MSFC DAAC Archived TRMM Delivery to TSDIS test case verifies that the requested data is retrieved from archive and placed on the TSDIS accessible disk. Once the data has been placed on the disk, the MSFC DAAC sends a Data Response notice informing TSDIS on the availability of the requested data. Included in this response is a previously agreed upon time period by which the data is available for ingest. This test verifies that the delivered data follows EOSDIS-defined standards with jointly agreed upon specific product formats. The Inspection method is used to verify the preparation of the Data Response notice by the DIT. Inputs for this test case consist of the data and documentation mentioned in section (9.2.5.1) "MSFC DAAC TSDIS Data Requests Receipt/Validation". Expected results include the successful preparation, delivery, and receipt of the data detailed in the Data Response notice. Verification is performed to ensure that the specific data request in the notice is delivered and accessible to the TSDIS.

9.2.5.3 Test Case B090250.030-MSFC DAAC Reprocessed TRMM Data Receipt/Check from TSDIS

The MSFC DAAC Reprocessed TRMM Data Receipt/Check from TSDIS test case verifies the capability to ingest reprocessed data from the TSDIS. This ingest is a routinely scheduled event that is detailed in the TRMM weekly delivered product schedule. The Demonstration method is used to verify that requirements related to the ingesting of TRMM data are satisfied. Inputs for this test case include the data TSDIS data product schedule and the data that is available for ingest from the TSDIS. The TRMM reprocessed data sets are related to reprocessed PR, TMI, and GV data products and include the following: Level 1A -3 data products, metadata, browse, GV, science software, and associated documentation. The DIT verifies that all of the data listed in the schedule is ingested and that transmission was complete and successful. In the event of an unsuccessful data transmission, the DIT requests that either the data be retransmitted or asks the TSDIS operations staff to investigate the problem. Once the problem has been detected and reported, the DIT logs the problem in the error log. This test case verifies that all of the ingested, reprocessed TSDIS data conforms to the EOSDIS-defined product formats standards. If there is a delay in the distribution of the products, this test verifies the capability of the TSDIS to provide delivery status information. This delivery status information is then inserted into the future schedule and plans. Expected results for this test case include the successful ingest of the TSDIS reprocessed data products.

Also, this test case verifies the capability to validate the ingested, reprocessed TRMM data and metadata. The Test method is used to verify that requirements related to the validation of data and metadata are satisfied. Verifications are performed, at a minimum, for the following data transmission and consistency checks: data quality, data gaps, data redundancy, presence of required fields, error-free input, correctness of the data set granular size, approve/authorized source, and data/metadata compliance with EOSDIS defined standards and file content. Inputs for this test case include the reprocessed data that has been ingested from the TSDIS. The DIT assists in the performance of the data transmission and consistency checks. Expected results for this test case include the generation and distribution, to TSDIS, of a status report indicating the success or failure of the data checks. Verification is also made to ensure the updating of the data receipt log upon completion of the data checks.

9.2.5.4 Test Case B090250.040-MSFC DAAC Reprocessed TRMM Metadata Extraction/Verification

The MSFC DAAC Reprocessed TRMM Metadata Extraction/Verification test case verifies the capability to extract and validate minimal metadata in order for the data to be referenced. The Test method is used to verify that requirements related to the extraction and verification of metadata are satisfied. Inputs for this test include the metadata and any associated documentation that has been delivered as part of the ingested data set. This metadata can either be: extracted from information held within the data file, held in a file/message associated with data, or derived directly from the delivered file reference. This test verifies that the metadata contains data set name, instrument name, observation time, and granule id. The DIT verifies that the metadata information, including contents, is complete and accurate. If the metadata passes all of the verification checks, this test verifies the capability to generate a report indicating the

successful checks and sends this report to the TSDIS. In the event the verification checks are not successful, the DIT notifies the TSDIS of the detected problems and logs the metadata checks as being unsuccessful. This test verifies that the data receipt log is updated to reflect the outcome of the metadata validation checks and that the ingested associated metadata is updated to include the status of the metadata checks. Expected results for this test case involve the successful extraction and verification of the TSDIS metadata.

9.2.5.5 Test Case B090250.050-MSFC DAAC TRMM Data Product Preprocessing/ Storage

The MSFC DAAC TRMM Data Product Preprocessing/Storage test case verifies the capability to prepare the reprocessed PR, TMI, and GV data products for archiving. The Test method is used to verify the archiving preparation of the data. Inputs for this test case include the PR, TMI, and GV reprocessed data products. Verification is made to ensure that the appropriate data products are destaged and if required, reformatted for internal storage. Reformatting is performed in accordance with the approved project standard format. Prior to storage, the following set of metadata is generated: data and time of storage, physical location, data check status, and a unique format identifier. Expected results involve the successful preparation of the reprocessed PR, TMI, and GV data products for archiving.

Also, this test case verifies the capability of the MSFC DAAC to archive the reprocessed PR, TMI, and GV data including the following: Level 1A-3 data products, metadata, browse, science software, and associated documentation. The Test method is used to verify the requirements related to the archiving of the reprocessed data products. Inputs for this test case include the PR, TMI, and GV reprocessed data products ready for archiving. Following are the steps associated with the archival process: insertion of the data into the appropriate data server, insertion of the metadata into the inventory, update of the data receipt log with storage status information, and delivery of storage status information to the TSDIS. Expected results for this test case involve the successful archiving of the TRMM data products, update of the data receipt log, and generation of the data status report.

9.2.5.6 Test Case B090250.060-MSFC DAAC TRMM Directories/Inventories Update and Notification

The MSFC DAAC TRMM Directories/Inventories Update and Notification test case verifies the capability to update related directories and inventories associated with the reprocessed PR, TMI, and GV data. The Test method is used to verify that all directories and inventories pertaining to the reprocessed TRMM data are updated accurately and completely. Inputs for this test case include the unique set ID that is assigned to each data product. Verification is made to ensure the capability to update the internal file directories with this unique data set ID. The inventory is updated with metadata reflecting changes caused by the reprocessing. In addition, the list reflecting the reprocessed data products is also updated. Expected results involve the successful update of all directories and inventories that pertain to the reprocessed TRMM data products.

Also, this test case verify the capability of the MSFC DAAC to notify subscribed users when the PR, TMI, and GV data has been reprocessed and is available for distribution. The Test and

Demonstration methods are used to verify that all general information regarding these newly reprocessed TRMM data products are available to users via the Advertising Service. Inputs for this test case include the list of the reprocessed data products to be displayed in the Advertising Service. Expected results include the successful user notification on the availability of the reprocessed TRMM data and the updated metadata that reflects changes created by reprocessing.

9.2.6 MSFC DAAC On-Demand Processing Sequence

The MSFC DAAC On-Demand Processing Sequence verifies the ability to receive on-demand requests from users regarding the archived LIS data products. This sequence verifies the capability to perform checks determining whether the request is within a pre configured threshold. The request may be deferred until the next plan if the threshold amount has been exceeded. Verification is made to ensure that all necessary inputs are available in order for processing of the on-demand request to continue. In the event necessary input data is missing, then a request is put in for the missing data and the request is included in the next plan. Verification is made to ensure that the production scheduler is notified that the request has been received and deferred until a later time.

9.2.6.1 Test Case B090260.010-MSFC DAAC On-Demand Processing Request Receipt and Verification

The MSFC DAAC On-Demand Processing Request Receipt and Verification test case verifies the capability to receive requests for On-Demand processing and verify that the information contained within the request is complete and accurate. The various types of these requests include standing orders, changes to standing orders, and product requests. These on-demand processing requests are for the LIS data products that are archived. The Test method is used to verify requirements associated with the receipt and verification of on-demand processing requests. This test case follows the same test process described in section (9.1.5.1) "LaRC DAAC On-Demand Processing Request Receipt and Verification" with the idea that the data, operations, inputs, and expected results are specific to the MSFC DAAC.

9.2.6.2 Test Case B090260.020-MSFC DAAC On-Demand Processing Request Schedule Generation

The MSFC DAAC On-Demand Processing Request Schedule Generation test case verifies the capability to generate schedules reflecting the on-demand requests received for data product processing and generation of the LIS data products. Verification is made to ensure that a subscription is submitted by the production scheduler, if one does not already exist, for the on-demand processing request. The Test method is used to verify that processing plan and product generation schedule related requirements are satisfied. This test case follows the same test process described in section (9.1.5.2) "LaRC DAAC On-Demand Processing Request Schedule Generation" with the idea that the data, operations, inputs, and expected results are specific to the MSFC DAAC.

9.2.6.3 Test Case B090260.030-MSFC DAAC On-Demand Processing and Notification

The MSFC DAAC On-Demand Processing and Notification test case verifies the capability to process users' requests for LIS data products and notify the users upon completion of the processing procedure. Upon successful completion of processing the on-demand request, the requested data product(s) are sent to the requester. The Test method is used to verify requirements covered in this test case. This test case follows the same test process described in section (9.1.5.3) "LaRC DAAC On-Demand Processing and Notification" with the idea that the data, operations, inputs, and expected results are specific to the MSFC DAAC.

9.2.7 MSFC DAAC Non-Standard Product Receipt Sequence

The MSFC DAAC Non-Standard Product Receipt Sequence verifies the ability of operational users to send non-standard products for mission related processing. The type of data received may consist of the following: correlative and ancillary data, documents, science software, and instrument history logs from other DAACs and the LIS SCF. This sequence verifies the receipt of the data, follow the instructions for loading the data onto ECS media, validate receipt and account for data, store the data products, and notify the sender that the data has been archived.

9.2.7.1 Test Case B090270.010-MSFC DAAC Ingest and Archive Non-Standard Products from Other DAACs

The MSFC DAAC Ingest and Archive Non-Standard Products from Other DAACs test case verifies the capability to ingest expected non-standard data products from one or more of the other product generating DAACs. The other DAACs involved are LaRC, GSFC, JPL, NSIDC, and EDC. Verification is also made to ensure the capability to validate and archive this ingested non-standard data. This test verifies that upon completion of the archival process, a notice is sent to the provider of the ingested data acknowledging archiving of the non-standard data products. The Test method is used to verify that requirements related to the ingesting of non-standard data are satisfied. This test case follows the same test process described in section (9.1.6.1) "LaRC DAAC Ingest and Archive Non-Standard Products from Other DAACs" with the idea that the data, operations, inputs, and outputs are specific to the MSFC DAAC.

9.2.7.2 Test Case B090270.020-MSFC DAAC Ingest and Archive Non-Standard Products from LIS SCF

The MSFC DAAC Ingest and Archive Non-Standard Products from LIS SCF test case verifies the capability to ingest expected non-standard data products from the LIS SCF. Verification is also made to ensure the capability to validate and archive the ingested non-standard data. This test verifies that upon completion of the archival process, a notice is sent to the provider of the ingested data acknowledging archiving of the non-standard data products. The Test method is used to verify that non-standard data ingest requirements are satisfied. This test case follows the same test process described in section (9.1.6.2) "LaRC DAAC Ingest and Archive Non-Standard Products from SCFs" with the idea that the data, operations, inputs, and outputs are specific to the MSFC DAAC.

9.2.8 MSFC DAAC Science Data Production Software Updates and Calibration Parameters Receipt Sequence

The MSFC DAAC Science Data Production Software Updates and Calibration Parameters Receipt Sequence verifies the ability of the Science Software Integration and Test Team (SSITT) to log, ingest, generate status reports and archive the science data production software that is delivered from the SCF. The MSFC DAAC is responsible for updates to the science data production software relating to LIS data products. The transmission of the software is initiated when the SCF science investigator contacts the SSITT manager to coordinate and make arrangements to have the software update package transferred electronically for integration and testing purposes.

9.2.8.1 Test Case B090280.010-MSFC DAAC Science Data Production Software Updates Installation

The MSFC DAAC Science Data Production Software Updates Installation test case verifies the capability of the SSITT to install the science software updates. These software updates are related to science data production software used to produce LIS data products and include calibration data. This test verifies the ability of the SSITT to accurately coordinate both internal and external communications regarding the issues and impacts that are produced by each newly updated science software. The Inspection method is used to verify that requirements related to science software updates installation are satisfied. This test case follows the same test process described in section (9.1.7.1) "LaRC DAAC Science Data Production Software Updates Installation" with the idea that the data, operations, inputs, and outputs are specific to the MSFC DAAC.

9.2.8.2 Test Case B090280.020-MSFC DAAC Science Data Production Software Reporting

The MSFC DAAC Science Data Production Software Reporting test case verifies that systems engineers, managers, and general science users accomplish the generation of site specific software reports in a prompt and accurate manner. These reports detail information concerning the LIS data products software that has been updated. The Inspection method is used to verify that report generation requirements are satisfied. This test case follows the same test process described in section (9.1.7.2) "LaRC DAAC-ECS Science Data Production Software Reporting" with the idea that the data, operations, inputs, and outputs are specific to the MSFC DAAC.

9.2.8.3 Test Case B090280.030-MSFC DAAC Science Data Production Software Archiving and Retention

The MSFC DAAC Science Data Production Software Archiving and Retention test case verifies the ability of the systems engineers, managers, and general science users to access and maintain a central database storage of the LIS related science data production software. This test verifies the ability of the SSITT personnel and other users to efficiently store and retrieve executable and calibration coefficients related to science data production software. The Inspection method is used to verify that science data production software archiving and retention requirements are satisfied. This test case follows the same test process described in section (9.1.7.3) "LaRC

DAAC Science Data Production Software Archiving and Retention" with the idea that the data, operations, inputs, and outputs are specific to the MSFC DAAC.

9.2.9 MSFC DAAC Coordinate Processing Plan and Schedules Sequence

The MSFC DAAC Coordinate Processing Plan and Schedules Sequence verifies the ability of operational users to receive mission related planning/processing updated schedules and reconfiguration directives from the SMC. This sequence verifies the capability to coordinate, with the SMC, the frequency of a product (e.g., daily, weekly, monthly). The capability to coordinate subscriptions, data and product dependencies tables, product generation deadlines, and standing orders is verified in this sequence.

9.2.9.1 Test Case B090290.010-MSFC DAAC Coordinate Updates to SMC Processing Plans and Schedules

The MSFC DAAC Coordinate Updates to SMC Processing Plans and Schedules test case verifies the capability to provide its operations staff access to sufficient procedures detailing coordination processes for SMC processing plans and schedules. These procedures are manual, automated, or a combination of the two. Verification by the Inspection method is used to ensure that requirements related to coordinating the SMC processing plans and schedule maintenance are satisfied. This test case verifies the coordination of SMC processing plans and schedules and follows the same test process described in section (9.1.8.1) "LaRC DAAC Coordinate Updates to SMC Processing Plans and Schedules" with the idea that the data, operations, inputs, and outputs are specific to the MSFC DAAC.

9.3 ECS at the GSFC DAAC Data Ingest Operations Scenario

The ECS at the GSFC DAAC Data Ingest Operations at GSFC DAAC Scenario details the functions and capabilities that are handled by the ECS at the GSFC DAAC, including the process of planning for, and receiving Level 0 through Level 4 mission instrument related data from external sources. In addition, the operations involved in the processing, formatting, archiving, creating higher level products, and reprocessing of this data are discussed in this scenario. For the remainder of this document, the term "GSFC DAAC" is used to reference "ECS at the GSFC DAAC".

This scenario verifies the GSFC DAAC capability to ingest Level 0 science, correlative, ancillary, and definitive data from EDOS, SDPF, ADCs, Flight Dynamics Facility (FDF), EDC, NSIDC, and ASTER GDS as listed in Table 7-1 of this document. The capability to format MODIS and COLOR Level 0 data products into an approved ECS format, schedule processing for the data, determine the resources necessary to produce the higher level products, archive the data, and reprocess the data is verified in this scenario. This scenario verifies the capability to execute processing plans linking Level 0 data to ancillary data, science software, databases, and math libraries through the automatic generation of metadata. The capability to assess the quality of the ingested data products, including data checks performed to determine the type of data received, procedures to process the data, and data compliance with EOSDIS standards, is verified in this scenario.

This scenario verifies the GSFC DAAC capability to receive higher level data and make this data available to users for further processing and analysis. This scenario verifies the capability to perform the following actions: receive data arrival notices and higher level data from the DAACs; verify that the data receipt process is complete and header information is accurate; extract metadata and verify the information; archive the metadata; and maintain an on-line directory. The capability to perform quality analysis on the data product is verified by checking for the presence of the following: required fields, error-free input, correctness of data set granule size, and other checks that are deemed necessary.

This scenario verifies the capability of the GSFC DAAC to reprocess previously archived data sets while continuing to ingest the routine daily allotment of current data sets from the external sources. This scenario verifies that a Data Request is sent by the originating source of the data indicating the archived data that is required in order to complete the reprocessing activity. The capability to ingest data from the VIRS, MODIS, and COLOR instruments for reprocessing and, if necessary, reformat the data products is verified in this scenario. Also, the capability to replace the previous processed data products with the newly processed data products, and update related directories and inventory files is verified.

This scenario verifies the capability of the GSFC DAAC to ingest data products requiring special procedures, DAAC specific baseline mission data parameters received from the SMC, SCFs, and other ECS internal segments. The capability to log information (e.g., data, documentation, science software), ingest data, generate status reports, and archive science product software updates, in support of science software integration and test, that are received from the MODIS and COLOR instruments is verified in this scenario.

This scenario verifies the GSFC DAAC capability to receive users' on-demand requests for processing of products archived by the ECS. The capability to integrate a user interface, pertaining to processing schedules and orbital models, for help on the products archived by ECS is verified. This scenario verifies that the on-demand processing request is within the pre-configured threshold and that the required inputs necessary for product generation are present and available.

During Release B acceptance testing, this scenario verifies the capability of the GSFC DAAC to support the AM-1 Mission, including the ingest of MODIS Level 0 data, the production and distribution of MODIS Levels 1A, 1B, 2, 3, and 4 data, as well as the archive of MODIS Levels 1A, 1B, and 2 data. The additional capability to support the COLOR mission includes the following: Science Software Integration and Test; Level 0 data ingest; and Level 1 - 3 production, archive, and distribution is verified in this scenario.

This scenario verifies that the GSFC DAAC fully supports TRMM mission operations, including: archiving of TRMM VIRS data products, providing TSDIS access to ancillary product, delivery of products to TSDIS for reprocessing, and ingest/archive of reprocessed VIRS data. Also, there is the continuous support of access to V0 data products and science software and test capabilities for AM-1 MODIS instrument and COLOR data.

9.3.1 GSFC DAAC Level 0 Data Receipt Sequence

The GSFC DAAC Level 0 Data Receipt Sequence verifies the capability to produce higher level (Levels 1 through 4) data products by the ingest of Level 0 data from the AM-1 and COLOR Source mission platforms. This sequence of tests verifies the capability to ingest MODIS and COLOR Level 0 ancillary, correlative, and calibration data. After the data has been ingested by the GSFC DAAC, this sequence verifies that the data receipt log is updated and the data is formatted and verified in order to continue with the processing of the higher level products. Once the data is formatted, this sequence verifies the capability of the GSFC DAAC to generate and archive higher level MODIS and COLOR data products, and insert the metadata into the directory, guide, and inventory databases.

9.3.1.1 Test Case B090310.010-GSFC DAAC Level 0 Data Receipt, Validation, and Formatting

The GSFC DAAC Level 0 Data Receipt, Validation, and Formatting test case verifies the capability to ingest COLOR and MODIS Level 0, ancillary, correlative, and calibration data. The Demonstration method is used to verify that Level 0 data ingest requirements are satisfied. This test case verifies the capability to validate and format the ingested COLOR and MODIS data that is used to generate the Level 1-4 data products. The Analysis and Inspection methods are used to verify that validation, format, and product generation requirements are satisfied. This test verifies the ability to receive, validate, and format the COLOR and MODIS Level 0 data and generate the higher level data products. This test case follows the same test process described in section (9.1.1.1) "LaRC DAAC Level 0 Data Receipt, Validation, and Formatting" with the idea that the data, operations, inputs, and outputs are specific to the GSFC DAAC.

9.3.1.2 Test Case B090310.020-GSFC DAAC Metadata and Level 1-4 Data Processing

The GSFC DAAC Metadata and Level 1-4 Data Processing test case verifies the capability to extract and analyze COLOR and MODIS associated metadata, as well as, generate the Level 1-4 data products. The Analysis method is used to verify that metadata generation and higher level processing requirements are satisfied. This test verifies the DIT's ability to analyze metadata, perform data consistency checks, and review generated analysis and status reports for completeness and accuracy. This test case follows the same test process described in section (9.1.1.2) "LaRC DAAC Metadata and Level 1-4 Data Processing" with the idea that the data, operations, inputs, and outputs are specific to the GSFC DAAC.

9.3.1.3 Test Case B090310.030-GSFC DAAC Archive COLOR and MODIS Data Products

The GSFC DAAC Archive COLOR and MODIS Data Products test case verifies the capability to archive the Level 0 and generated Level 1-4 data products. The Test and Demonstration methods are used to verify that COLOR and MODIS Level 0 and generated Level 1-4 data products archive requirements are satisfied. This test case verifies the archiving of the newly generated data products by following the data processing plan specific to the archival process. Additionally, this test verifies that the DIT reviews the standard data summaries and analysis

reports for completeness and accuracy. This test case follows the same test process described in section (9.1.1.3) "LaRC DAAC Archive Data Products" with the idea that the data, operations, inputs, and outputs are specific to the GSFC DAAC.

9.3.2 GSFC DAAC Level 1A-3 Data Receipt from the TSDIS Sequence

The GSFC DAAC Level 1A-3 Data Receipt from the TSDIS Sequence verifies the ability of the TRMM VIRS users to store higher level VIRS Level 1A-3 standard products, associated metadata, and documentation. This sequence verifies the ability to receive data availability schedules/status for the ingested data, standard data products generated at the TSDIS, metadata, as well, as browse data, science software, and documentation related to the VIRS data. Verification is made to ensure that the data is validated, accounted for, checked, and archived. This sequence verifies the capability of the TRMM VIRS users to receive status information concerning their ingested VIRS products.

9.3.2.1 Test Case B090320.010-GSFC DAAC Data Availability Notice Receipt

The GSFC DAAC Data Availability Notice Receipt test case verifies the capability to receive data availability schedules and data delivery status from the TSDIS concerning VIRS data sets. The data availability schedules indicate the times when the VIRS data sets are available and ready for ingest. The Demonstration method is used to verify that requirements related to data availability schedules are satisfied. This test case follows the same test process described in section (9.2.2.1) "ECS at the MSFC DAAC Data Availability Notice Receipt" with the idea that the data, operations, inputs, and expected results are specific to the GSFC DAAC.

9.3.2.2 Test Case B090320.020-GSFC DAAC Ingest/Accountability of TRMM VIRS Data/Metadata

The GSFC DAAC Ingest/Accountability of TRMM VIRS Data/Metadata test case verifies the capability to ingest and account for TRMM VIRS data products. These data products include Level 1A data, TRMM Level 1B - Level 3B standard products, TRMM browse products, science software, correlative data, and metadata. The Test method is used to verify that TRMM ingest requirements are satisfied. This test case follows the same test process described in section (9.2.2.2) "ECS at the MSFC DAAC Ingest/Accountability of TRMM PR, TMI, and GV Data/Metadata" with the idea that the data, operations, inputs, and expected results are specific to the GSFC DAAC.

9.3.2.3 Test Case B090320.030-GSFC DAAC Ingest TRMM VIRS Documentation and Validation

The GSFC DAAC Ingest TRMM VIRS Documentation and Validation test case verifies the capability to ingest and validate VIRS related documentation. This documentation describes Level 1 - Level 3 data, science software, and calibration data related to the VIRS data products. The Test method is used to verify that requirements related to the ingest of documentation are satisfied. This test case follows the same test process described in section (9.2.2.3) "ECS at the MSFC DAAC Ingest TRMM PR, TMI, and GV Documentation and Validation" with the idea that the data, operations, inputs, and expected results are specific to the GSFC DAAC.

9.3.2.4 Test Case B090320.040-GSFC DAAC Data/Metadata Validation and Compliance Check

The GSFC DAAC Data/Metadata Validation and Compliance Check test case verifies the capability to perform validation checks on the higher level VIRS data products ingested from the TSDIS. During this validation process, the data header is automatically examined to ensure that the data has not been corrupted. These data validation checks consist of: data identification, data routing, time-ordering of the data, data gaps, data redundancy, and data quality. The Test method is used to verify that data and metadata validation requirements are satisfied. This test case follows the same test process described in section (9.1.2.4) "LaRC DAAC NOAA ADC Data/Metadata Validation and Compliance Check" with the idea that the data, operations, inputs, and expected results are specific to the GSFC DAAC.

9.3.2.5 Test Case B090320.050-GSFC DAAC Metadata Extraction/Verification

The GSFC DAAC Metadata Extraction/Verification test case verifies the capability to extract and verify the metadata associated with the VIRS data products. The Demonstration and Inspection methods are used to verify that metadata extraction and verification requirements are satisfied. The capability to check for the presence of a unique granule id in the metadata header is verified. Upon ingest, metadata is extracted and the data is identified, referenced, and stored. This metadata is extracted from information contained within the data file, file/message associated with the data, or derived directly from the delivered file message. A limited amount of metadata is extracted and includes: data set name, instrument name, observation time, and granule id. This test follows the same test process described in section (9.1.2.5) "LaRC DAAC NOAA ADC Metadata Extraction/Verification" with the idea that the data, operations, inputs, and expected results are specific to the GSFC DAAC.

9.3.2.6 Test Case B090320.060-GSFC DAAC Data Archiving

The GSFC DAAC Data Archiving test case verifies the capability to provide storage for the higher level processed VIRS data products, insert the metadata into the inventory, and update the data receipt log upon completion of the data archival process. Verification is also made to ensure that guide, inventory, and directory information is included in a notice to store the higher level products. The Test and Inspection methods are used to verify that higher level data archiving requirements are satisfied. This test case follows the same test process described in section (9.1.2.6) "LaRC DAAC NOAA ADC Data Archiving" with the idea that the data, operations, inputs, and expected results are specific to the GSFC DAAC.

9.3.2.7 Test Case B090320.070-GSFC DAAC Maintain On-Line Directories

The GSFC DAAC Maintain On-Line Directories test case verifies that guide, inventory, and directory databases are updated and an insertion is made into the directory when this information is extracted from the VIRS data product related metadata. There are three levels of user accessible metadata that are maintained: Directory, Guide, and Inventory. The Test method is used to verify that the appropriate information is updated and inserted into the directory, guide, and inventory. This test case follows the same test processed described in section (9.1.2.7)

"LaRC DAAC NOAA ADC Data Maintain On-Line Directories" with the idea that the data, operations, inputs, and expected results are specific to the GSFC DAAC.

9.3.3 GSFC DAAC Ancillary Data Receipt from the NOAA ADC Sequence

The GSFC DAAC Ancillary Data Receipt from the NOAA ADC Sequence verifies the ability of the NOAA ADC users to store ancillary data, used to support the TSDIS product generation, as well as, advertising information. The NOAA TSDIS ancillary data may include associated metadata, and documents. This sequence of tests verifies that a product availability query for the NOAA data is generated, and as a result of the query, the NOAA ADC sends a product availability list indicating the availability of the requested data. Upon availability of this TSDIS ancillary data, the data is ingested and stored. The capability to validate, account for, check for EOSDIS compliance and archive the ingested NOAA ancillary data and TRMM VIRS data is verified in this sequence. Also, the ability of the NOAA and TRMM VIRS users to receive status information on their ingested data products is verified in this sequence.

9.3.3.1 Test Case B090330.010-GSFC DAAC Product Delivery Status Receipt

The GSFC DAAC Product Delivery Status Receipt test case verifies the ability to receive product delivery status regarding data availability schedules for NOAA ADC data sets (ancillary data and documentation) that are used in the generation of the TSDIS data products. These schedules indicate the times when the NOAA ADC data sets are available in order to proceed with the generation of the TSDIS data products. The Demonstration method is used to verify that data availability schedule requirements are satisfied. This test case follows the same test process described in section (9.1.2.1) "LaRC DAAC Product Delivery Status Receipt" with the idea that the data, operations, inputs, and expected results are specific to the GSFC DAAC.

9.3.3.2 Test Case B090330.020-GSFC DAAC Ingest/Accountability of NOAA ADC TSDIS Ancillary Data/Metadata

The GSFC DAAC Ingest/Accountability of NOAA ADC TSDIS Ancillary Data/Metadata test case verifies the capability to ingest ancillary data, science software packages, and advertising information from the NOAA ADC. This ancillary data is used in the generation of the TSDIS data products. The documentation contains information regarding data sets, science software, and other applicable information. The science software package, contributed by an SAA, includes science software code, scripts, and/or documentation. The Test method is used to verify that ancillary data, science software, documents, and associated metadata ingest requirements are satisfied. This test case follows the same test process described in section (9.1.2.2) "LaRC DAAC Ingest/Accountability of NOAA ADC Ancillary Data/Metadata" with the idea that the data, operations, inputs, and expected results are specific to the GSFC DAAC.

9.3.3.3 Test Case B090330.030-GSFC DAAC Validation of NOAA ADC Documentation

The GSFC DAAC Validation of NOAA ADC Documentation test case verifies the capability to ingest documentation associated with the TSDIS ancillary data and science software delivered from the NOAA ADC. The documentation is generated in either ASCII text, Microsoft WORD,

HTML, Interleaf, Postscript, or WordPerfect digital text formats. The Test method is used to verify that requirements related to documentation ingest are satisfied. This test case follows the same test process described in section (9.1.2.3) "LaRC DAAC Validation of NOAA ADC Documentation" with the idea that the data, operations, inputs, and expected results are specific to the GSFC DAAC.

9.3.3.4 Test Case B090330.040-GSFC DAAC NOAA ADC Data/Metadata Validation and Compliance Check

The GSFC DAAC NOAA ADC Data/Metadata Validation and Compliance Check test case verifies the capability to automatically check for transmission errors and to perform validation and compliance checks on the TSDIS ancillary data, calibration data, documentation, and associated metadata ingested from the NOAA ADC. This test verifies that the data and metadata are checked for compliance with the EOSDIS defined standards. The Test method is used to verify that data/metadata validation and compliance check requirements are satisfied. This test case follows the same test process described in section (9.1.2.4) "LaRC DAAC NOAA ADC Data/Metadata Validation and Compliance Check" with the idea that the data, operations, inputs, and outputs are specific to the GSFC DAAC.

9.3.3.5 Test Case B090330.050-GSFC DAAC NOAA ADC Metadata Extraction/ Verification

The GSFC DAAC NOAA ADC Metadata Extraction/Verification test case verifies the capability to extract and verify the metadata associated with the TSDIS ancillary data. During the ingest of the TSDIS data, associated metadata is extracted in order for the data to be identified, referenced, and stored. Metadata validation checks are based on the ingested data type and the required agreed upon attributes list. The Demonstration and Inspection methods are used to verify that metadata extraction and verification requirements are satisfied. This test case follows the same test process described in section (9.1.2.5) "LaRC DAAC NOAA ADC Metadata Extraction/Verification" with the idea that the data, operations, inputs, and outputs are specific to the GSFC DAAC.

9.3.3.6 Test Case B090330.060-GSFC DAAC NOAA ADC Data Archiving

The GSFC DAAC NOAA ADC Data Archiving test case verifies the capability to provide storage for the NOAA ADC data required for TSDIS data product generation, insert the metadata into the inventory, and update the data receipt log upon completion of the data archival process. Verification is also made to ensure that guide, inventory, and directory information is included in a notice to store the higher level products. The Test and Inspection methods are used to verify that higher level data archiving requirements are satisfied. This test case follows the same test process described in section (9.1.2.6) "LaRC DAAC NOAA ADC Data Archiving" with the idea that the data, operations, inputs, and expected results are specific to the GSFC DAAC.

9.3.3.7 Test Case B090330.070-GSFC DAAC NOAA ADC Data Maintain On-Line Directories

The GSFC DAAC NOAA ADC Data Maintain On-Line Directories test case verifies that guide, inventory, and directory databases are updated and an insertion is made into the directory when this information is extracted from the TSDIS data product related metadata. There are three levels of user accessible metadata that are maintained: Directory, Guide, and Inventory. The Test method is used to verify that the appropriate information is updated and inserted into the GSFC DAAC directory and inventory. This test case follows the same test procedure described in section (9.1.2.7) "LaRC DAAC NOAA ADC Data Maintain On-Line Directories" with the idea that the data, operations, inputs, and expected results are specific to the GSFC DAAC.

9.3.4 GSFC DAAC Version 0 Data Receipt Sequence

The GSFC DAAC Version 0 Data Receipt Sequence capability to ingest V0 data from the V0 GSFC DAAC is verified in this sequence. This sequence of tests verifies the capability to receive static data related migration data products, browse data, associated metadata and documentation, ancillary data and correlative data from the V0 DAAC. In the case of operational data, this sequence verifies the capability to ingest related data products, browse data, and associated metadata from the DAAC V0 processor. Verification is also performed to ensure the ability to validate, account for, check, permanently store the V0 data, and send status information to the V0 users.

9.3.4.1 Test Case B090340.010-GSFC DAAC Ingest/Accountability of V0 Data/ Metadata from the V0 DAAC

The GSFC DAAC Ingest/Accountability of V0 Data/Metadata from the V0 DAAC test case verifies the capability to ingest migration metadata; data products; and ancillary, correlative, and browse data from the V0 DAAC. Verification is also made to ensure that the ingested migration data is complete, accurate, and accounted for. Two types of migration data exist: static and operational. The Test method is used to verify that data/metadata ingest and accountability requirements are satisfied. This test case verifies the receipt and accountability of the V0 data from the V0 DAAC and follows the same test process described in section (9.1.3.1) "LaRC DAAC Ingest/Accountability of V0 Data from the V0 DAAC" with the idea that the data, operations, inputs, and expected results are specific to the GSFC DAAC.

9.3.4.2 Test Case B090340.020-GSFC DAAC Ingest Migration Documentation and Validation

The GSFC DAAC Ingest Migration Documentation and Validation test case verifies the capability to ingest documentation related to the V0 migration data products. This documentation is formatted in one of the following digital text formats: ASCII text, Microsoft WORD, HTML, Interleaf, Postscript, and WordPerfect. The Test method is used to verify that requirements related to migration data documentation ingest and validation are satisfied. This test case verifies the GSFC DAAC ingest and validation of V0 migration data documentation and follows the same test process described in section (9.1.3.2) "LaRC DAAC Ingest Migration

Documentation and Validation" with the idea that the data, operations, inputs, and expected results are specific to the GSFC DAAC.

9.3.4.3 Test Case B090340.030-GSFC DAAC Migration Data/Metadata Validation and Compliance Check

The GSFC DAAC Migration Data/Metadata Validation and Compliance Check test case verifies the capability to perform an automatic examination of the data header to check for anomalies in the ingested migration data. The capability to perform validation and compliance checks on the migration data/metadata ingested from the V0 DAAC is verified in this test case. A status report is generated, indicating the success or failure, of the data/metadata consistency checks. The Test method is used to verify that requirements related to the validation and compliance checking of migration data/metadata are satisfied. This test case verifies the GSFC DAAC validation and compliance check of V0 migration data and follows the same test process described in section (9.1.2.4) "LaRC DAAC NOAA ADC Data/Metadata Validation and Compliance Check" with the idea that the data, operations, inputs, and expected results are specific to Migration Data/Metadata holdings at the GSFC DAAC.

9.3.4.4 Test Case B090340.040-GSFC DAAC Migration Metadata Extraction/ Verification

The GSFC DAAC Migration Metadata Extraction/Verification test case verifies the capability to check for the presence of a unique granule id in the metadata header. Once the ingest process is complete, metadata is extracted and the data is identified, referenced, and stored. The Demonstration and Inspection methods are used to verify that the metadata extraction/verification requirements are satisfied. This test case verifies the GSFC DAAC extraction and verification of metadata and follows the same test process described in section (9.1.2.5) "LaRC DAAC NOAA ADC Metadata Extraction/Verification" with the idea that the data, operations, inputs, and expected results are specific to Migration Data/Metadata holdings at the GSFC DAAC.

9.3.4.5 Test Case B090340.050-GSFC DAAC Migration Data Archiving

The GSFC DAAC Migration Data Archiving test case verifies the capability to provide storage for the following types of V0 migration data: data products, browse data, associated metadata and documentation, ancillary data, and correlative data. Verification is performed to ensure the capability to archive the V0 migration product data, insert the metadata into the inventory, and update the data receipt log. The Test and Inspection methods are used to verify that the V0 migration data archiving requirements are satisfied. This test case verifies the GSFC DAAC archiving of the V0 migration data and follows the same test process described in section (9.1.2.6) "LaRC DAAC NOAA ADC Data Archiving" with the idea that the data, operations, inputs, and expected results are specific to Migration Data/Metadata holdings at the GSFC DAAC.

9.3.4.6 Test Case B090340.060-GSFC DAAC Migration Data Maintain On-Line Directories

The GSFC DAAC Migration Data Maintain On-Line Directories test case verifies the capability to update the guide, inventory, and directory databases when guide and inventory data is extracted from the migration metadata. The Test method is used to verify that the directories are updated with the correct information. This test case verifies the GSFC DAAC update of directories and follows the same test process described in section (9.1.2.7) "LaRC DAAC NOAA ADC Data Maintain On-Line Directories" with the idea that the data, operations, inputs, and expected results are specific to Migration Data/Metadata holdings at the GSFC DAAC.

9.3.5 GSFC DAAC Reprocessing Request Receipt and Process Sequence

The GSFC DAAC Reprocessing Request Receipt and Process Sequence verifies the ability of the SCF users to request the reprocessing of MODIS and COLOR related standard data products, browse data products, and associated metadata. The capability to ingest, from the SCF users, reprocessing request indicating the readiness to process with the reprocessing procedure is verified in this sequence. This sequence verifies the capability to validate the request, dispatch the plan for activation, and produce the standard/browse data products and metadata. The SCF users are notified when QA of the regenerated products can proceed. Once the reprocessed products are released by the SCF QA, this sequence verifies the capability to receive and process the updated assessment QA metadata. When the entire reprocessing procedure is completed, this sequence verifies that SCF users are notified and the affected directories and inventories are updated to reflect the new changes.

9.3.5.1 Test Case B090350.010-GSFC DAAC Receipt/Validation of SCF Reprocessing Requests

The GSFC DAAC Receipt/Validation of SCF Reprocessing Requests test case verifies the capability to receive GSFC SCF users' reprocessing requests for COLOR and MODIS standard and browse data products, in addition to, associated metadata. A scientist prepares the Reprocessing Request by utilizing a readily available Reprocessing Request Template. The Demonstration method is used to verify that reprocessing request requirements are satisfied. This test case follows the same test process described in section (9.1.4.1) "LaRC DAAC Receipt/Validation of SCF Reprocessing Requests" with the idea that the data, operations, inputs, and expected results are specific to the GSFC DAAC.

9.3.5.2 Test Case B090350.020-GSFC DAAC Generation/Dispatch of SCF Reprocessing Plan

The GSFC DAAC Generation/Dispatch of SCF Reprocessing Plan test case verifies the capability to generate reprocessing plans for COLOR and MODIS data products. Verification is performed to ensure that the reprocessing plan contains data dependencies, production strategy, and plan information from other applicable DAACs. The Test and Analysis methods are used to verify that reprocessing plan requirements are satisfied. In addition, this test case verifies the capability to receive reprocessing requests at regular time intervals according to a previously agreed upon schedule. The Test method is used to verify that the old plan is deactivated and

replaced with the new reprocessing plan. This test case follows the same test process described in section (9.1.4.2) "LaRC DAAC Generation/Dispatch of SCF Reprocessing Plan" with the idea that the data, operations, inputs, and expected results are specific to the GSFC DAAC.

9.3.5.3 Test Case B090350.030-GSFC DAAC Standard and Browse Data Products Reprocessing

The GSFC DAAC Standard and Browse Data Products Reprocessing test case verifies the capability to reprocess Level 1A - Level 3 COLOR and MODIS standard and browse data products, and their associated metadata. The reprocessing of data is caused by one or more of the following items: improved input data, new calibration data, improved calibration data, updated science software, required ancillary data, and the correct version of the science software. Verification is performed to ensure the capability to perform reprocessing of the COLOR and MODIS data products in accordance with the reprocessing plan. The Test and Analysis methods are used to verify that requirements related to the reprocessing of data products are satisfied. This test case follows the same test process described in section (9.1.4.3) "LaRC DAAC Standard and Browse Data Products Reprocessing" with the idea that the data, operations, inputs, and expected results are specific to the GSFC DAAC.

9.3.5.4 Test Case B090350.040-GSFC DAAC Standard and Browse Data Products QA Assessment Metadata Receipt/Processing

The GSFC DAAC Standard and Browse Data Products QA Assessment Metadata Receipt/Reprocessing test case verifies the capability to receive and process the QA assessment performed on the COLOR and MODIS standard and browse data products and associated metadata. This test verifies the capability to receive the product QA from the designated SCF. The Test and Demonstration methods are used to verify that requirements related to QA assessment receipt and processing are satisfied. This test case follows the same test process described in section (9.1.4.4) "LaRC DAAC Standard and Browse Data Products QA Assessment Metadata Receipt/Process" with the idea that the data, operations, inputs, and expected results are specific to the GSFC DAAC.

9.3.5.5 Test Case B090350.050-GSFC DAAC Reprocessed Data Directories/ Inventories Update and Notification

The GSFC DAAC Reprocessed Data Directories/Inventories Update and Notification test case verifies the capability to update directories and inventories associated with the COLOR and MODIS reprocessed data. The Demonstration method is used to verify that all inventories and directories regarding the reprocessed data are updated correctly. This test case verifies the capability to notify subscribed users, via the Advertising Service, that the COLOR and MODIS data products have been reprocessed. Verification is made to ensure that the users are provided access to metadata on the newly stored data granules. The Test and Demonstration methods are used to verify that users are able to access information concerning the reprocessed COLOR and MODIS standard and browse data products via the Advertising Service. This test case follows the same test process described in section (9.1.4.5) "LaRC DAAC Reprocessed Data

Directories/Inventories Update and Notification" with the idea that the data, operations, inputs, and expected results are specific to the GSFC DAAC.

9.3.6 GSFC DAAC TSDIS Reprocessing Support Sequence

The GSFC DAAC TSDIS Reprocessing Support Sequence verifies the capability to distribute and make electronic deliveries of archived TRMM VIRS data products and ancillary data to the TSDIS for reprocessing. The capability to extract the archived VIRS data from the data server and distribute the data to the TSDIS for reprocessing is verified in this sequence.

The ability of GSFC DAAC users to ingest reprocessed data from the TSDIS for the VIRS instrument is verified in this sequence. This sequence verifies, upon receipt of the reprocessed VIRS data, the capability to update the data receipt log, perform data checks for consistency, extract and update the metadata with inventory and consistency check information, stage the data for storage, and send data check status to the TSDIS.

9.3.6.1 Test Case B090360.010-GSFC DAAC TSDIS Data Requests Receipt/ Validation

The GSFC DAAC TSDIS Data Requests Receipt/Validation test case verifies the capability to support the TSDIS in the reprocessing of VIRS and required ancillary data archived. This test case verifies the capability to receive a Data Request notice from TSDIS concerning its data holdings. This notice contains requests for the following: VIRS Level 1A-3 data products; metadata; browse; science software; associated documentation; and NMC ancillary data. The Test method is used to verify the GSFC DAAC receipt of the Data Request notices. This test case follows the same test process described in section (9.2.5.1) "ECS at the MSFC DAAC TSDIS Data Requests Receipt/Validation" with the idea that the data, operations, inputs, and expected results are specific to the GSFC DAAC.

9.3.6.2 Test Case B090360.020-GSFC DAAC Archived TRMM Delivery to TSDIS

The GSFC DAAC Archived TRMM Delivery to TSDIS test case verifies that the DIT retrieves the requested data from archive and places the data on the TSDIS accessible disk. Once the data has been place on the disk, the DIT sends a Data Response notice informing TSDIS on the availability of the requested data. Included in this response is a previously agreed upon time period by which the data is available for ingest. This test verifies that the delivered data conforms to EOSDIS-defined standards with jointly agreed upon specific product formats. The Inspection method is used to verify the preparation of the Data Response notice by the DIT. This test case follows the same test process described in section (9.2.5.2) "ECS at the MSFC DAAC Archived TRMM Delivery to TSDIS" with the idea that the data, operations, inputs, and expected results are specific to the GSFC DAAC.

9.3.6.3 Test Case B090360.030-GSFC DAAC Reprocessed TRMM Data Receipt/ Check from TSDIS

The GSFC DAAC Reprocessed TRMM Data Receipt/Check from TSDIS test case verifies the capability to ingest reprocessed data from the TSDIS. The ingest is a routinely scheduled event

that is detailed in the TRMM weekly delivered product schedule. The Demonstration method is used to verify that requirements related to the ingesting of the TRMM data are satisfied. Also, this test case verifies the capability to validate the ingested, reprocessed TRMM data and metadata. The Test method is used to verify that requirements related to validation of data and metadata are satisfied. This test case follows the same test process described in section (9.2.5.3) "ECS at the MSFC DAAC Reprocessed TRMM Data Receipt/Check from TSDIS" with the idea that the data, operations, inputs, and expected results are specific to the GSFC DAAC.

9.3.6.4 Test Case B090360.040-GSFC DAAC Reprocessed TRMM Metadata Extraction/Verification

The GSFC DAAC Reprocessed TRMM Metadata Extraction/Verification test case verifies the capability to extract and validate minimal metadata in order for the data to be identified, referenced, and stored. The Test method is used to verify that requirements related to the extraction and verification of metadata are satisfied. This test case follows the same test process described in section (9.2.5.4) "ECS at the MSFC DAAC Reprocessed TRMM Metadata Extraction/Verification" with the idea that the data, operations, inputs, and expected results are specific to the GSFC DAAC.

9.3.6.5 Test Case B090360.050-GSFC DAAC TRMM Data Product Preprocessing/ Storage

The GSFC DAAC TRMM Data Product Preprocessing/Storage test case verifies the capability to prepare the reprocessed VIRS data products for archiving. The Test method is used to verify the archival preparation of the data. Also, this test case verifies the capability to archive the reprocessed VIRS data, including the following: Level 1A-3 data products, metadata, browse, science software, and associated documentation. The Test method is used to verify the requirements related to the archiving of the reprocessed data products. This test case follows the same test process described in section (9.2.5.5) "ECS at the MSFC DAAC TRMM Data Product Preprocessing/Storage" with the idea that the data, operations, inputs, and outputs are specific to the GSFC DAAC.

9.3.6.6 Test Case B090360.060-GSFC DAAC TRMM Directories/Inventories Update and Notification

The GSFC DAAC TRMM Directories/Inventories Update and Notification test case verifies the capability to update related directories and inventories associated with the reprocessed VIRS data. The Test method is used to verify that all directories and inventories pertaining to the reprocessed TRMM data are updated accurately and completely. Also, this test case verifies the capability to notify subscribed users that the VIRS data has been reprocessed and is available for distribution. The Test and Demonstration methods are used to verify that all general information regarding these newly reprocessed TRMM data products are available to users via the Advertising Service. This test case follows the same test process described in section (9.2.5.6) "ECS at the MSFC DAAC TRMM Directories/Inventories Update and Notification" with the idea that the data, operations, inputs, and expected results are specific to the GSFC DAAC.

9.3.7 GSFC DAAC On-Demand Processing Sequence

The GSFC DAAC On-Demand Processing Sequence verifies the ability to receive user on-demand requests for archived MODIS and COLOR data products. Verification is made to ensure the capability to perform checks determining whether the on-demand request is within in the pre configured threshold. The request may be deferred until the next plan if the request exceeds the desired capacity. Verification is made to ensure that all required inputs are available in order to continue with the on-demand request. In the event data is missing, a request is placed for the missing data and the user request is included in the next plan. The production scheduler is notified that the request has been received and is being deferred until a later time.

9.3.7.1 Test Case B090370.010-GSFC DAAC On-Demand Processing Request Receipt and Validation

The GSFC DAAC On-Demand Processing Request Receipt and Validation test case verifies the capability to receive requests for On-Demand processing and verify that the information contained within the request is complete and accurate. These on-demand processing requests are either standing orders, changes to standing orders, or product requests. These requests are for the MODIS and COLOR data products that are archived. The Test method is used to verify requirements associated with the receipt and verification of on-demand processing requests. This test case follows the same test process described in section (9.1.5.1) "LaRC DAAC On-Demand Processing Request Receipt and Verification" with the idea that the data, operations, inputs, and expected results are specific to the GSFC DAAC.

9.3.7.2 Test Case B090370.020-GSFC DAAC On-Demand Processing Request Schedule Generation

The GSFC DAAC On-Demand Processing Request Schedule Generation test case verifies the capability to generate schedules reflecting the on-demand product requests received for processing and generation of the COLOR and MODIS data products. Verification is made to ensure that the necessary data products are available in order for the processing of the on-demand request to continue. The Test method is used to verify that requirements related to the processing plan and product generation schedule are satisfied. This test case follows the same test process described in section (9.1.5.2) "LaRC DAAC On-Demand Processing Request Schedule Generation" with the idea that the data, operations, inputs, and expected results are specific to the GSFC DAAC.

9.3.7.3 Test Case B090370.030-GSFC DAAC On-Demand Processing and Notification

The GSFC DAAC On-Demand Processing and Notification test case verifies the capability to process users' requests for COLOR and MODIS data products. Also, this test case verifies that users are notified upon the completion of processing their on-demand requests. The Test method is used to verify that requirements related to processing and notification are satisfied. This test case follows the same test process described in section (9.1.5.3) "LaRC DAAC On-Demand Processing and Notification" with the idea that the data, operations, inputs, and expected results are specific to the GSFC DAAC.

9.3.8 GSFC DAAC Non-Standard Product Receipt Sequence

The GSFC DAAC Non-Standard Product Receipt Sequence verifies the ability of the operational users to send non-standard data products for mission related processing. The type of data received may consist of correlative and ancillary data, documents, science software, and instrument history logs from other DAACs, SCFs, and NOAA. The capability to ingest test plans, data, and procedures to facilitate the validation of new science software is verified in this sequence. This sequence of tests verifies the capability to receive and validate the data, follow the instructions for loading the data onto media, store the data, and notify the data provider that the data has been archived.

9.3.8.1 Test Case B090380.010-GSFC DAAC Ingest and Archive Non-Standard Products from Other DAACs

The GSFC DAAC Ingest and Archive Non-Standard Products from Other DAACs test case verifies the capability to ingest expected non-standard data products from one or more of the other product generating DAACs. The other DAACs involved are LaRC, MSFC, EDC, JPL, and NSIDC. Verification is also made to ensure the capability to validate and archive the ingested non-standard data. This test verifies that upon completion of the archival process, a notice is sent to the provider of the ingested data acknowledging archiving of the non-standard data products. The Test method is used to verify that requirements related to the ingesting of non-standard data are satisfied. This test case follows the same test process described in section (9.1.6.1) "LaRC DAAC Ingest and Archive Non-Standard Products from Other DAACs" with the idea that the data, operations, inputs, and outputs are specific to the GSFC DAAC.

9.3.8.2 Test Case B090380.020-GSFC DAAC Ingest and Archive Non-Standard Products from SCFs

The GSFC DAAC Ingest and Archive Non-Standard Products from SCFs test case verifies the capability to ingest expected non-standard data products from the MODIS and COLOR SCFs. Verification is also made to ensure the capability to validate and archive the ingested non-standard data. This test verifies that upon completion of the archival process, a notice is sent to the provider of the ingest data acknowledging archiving of the non-standard data products. The Test method is used to verify that non-standard data ingest requirements are satisfied. This test case follows the same test process described in section (9.1.6.2) "LaRC DAAC Ingest and Archive Non-Standard Products from SCFs" with the idea that the data, operations, inputs, and outputs are specific to the GSFC DAAC.

9.3.8.3 Test Case B090380.030-GSFC DAAC Ingest and Archive Non-Standard Products from NOAA ADC

The GSFC DAAC Ingest and Archive Non-Standard Products from NOAA ADC test case verifies the capability to ingest non-standard data products from the NOAA ADC. Verification is also made to ensure the capability to validate and archive this ingested NOAA ADC non-standard data. This test verifies that upon completion of the archival process, a notice is sent to the provider of the ingested data acknowledging archiving of the non-standard data products. The Test method is used to verify that requirements related to the ingesting of non-standard data

are satisfied. This test case follows the same test process described in section (9.1.6.3) "LaRC DAAC Ingest and Archive Non-Standard Products from NOAA ADC" with the idea that the data, operations, inputs, and outputs are specific to the GSFC DAAC.

9.3.9 GSFC DAAC Science Data Production Software Updates and Calibration Parameters Receipt Sequence

The GSFC DAAC Science Data Production Software Updates and Calibration Parameters Receipt Sequence verifies that the SSITT personnel logs, ingests, generates, and archives science data production software that has been delivered from the SCF. The GSFC DAAC is responsible for updates to the science data production software relating to MODIS and COLOR data products. The transmission of the software is initiated when the SCF science investigator contacts the SSITT manager to coordinate and make arrangements to have the software update package transferred electronically for integration and test purposes.

9.3.9.1 Test Case B090390.010-GSFC DAAC Science Data Production Software Updates Installation

The GSFC DAAC Science Data Production Software Updates Installation test case verifies the installation of the science software updates. These updated science software are related to science data production software used to produce COLOR and MODIS data products. The science software package contains: a configuration list, software programs, test data, calibration and coefficient data, and associated documentation. This test verifies the ability of the SSITT to accurately coordinate both internal and external communications regarding the issues and impacts that are produced by each newly updated science software. The Inspection method is used to verify that requirements related to science software updates installation are satisfied. This test case follows the same test process described in section (9.1.7.1) "LaRC DAAC Science Data Production Software Updates Installation" with the idea that the data, operations, inputs, and outputs are specific to the GSFC DAAC.

9.3.9.2 Test Case B090390.020-GSFC DAAC Science Data Production Software Reporting

The GSFC DAAC Science Data Production Software Reporting test case verifies that systems engineers, managers, and general science users accomplish the generation of site specific software reports in a prompt and accurate manner. These reports detail information concerning the COLOR and MODIS data products software that has been updated. The Inspection method is used to verify that report generation requirements are satisfied. This test case follows the same test process described in section (9.1.7.2) "LaRC DAAC Science Data Production Software Reporting" with the idea that the data, operations, inputs, and outputs are specific to the GSFC DAAC.

9.3.9.3 Test Case B090390.030-GSFC DAAC Science Data Production Software Archiving and Retention

The GSFC DAAC Science Data Production Software Archiving and Retention test case verifies the ability of the systems engineers, managers, and general science users to access and maintain a

central database storage of the COLOR and MODIS related science data production software. This test verifies the ability of the SSITT personnel and other users to efficiently store and retrieve executable and calibration coefficients related to science data production software. The Inspection method is used to verify that science data production software archiving and retention requirements are satisfied. This test case follows the same test process described in section (9.1.7.3) "LaRC DAAC Science Data Production Software Archiving and Retention" with the idea that the data, operations, inputs, and outputs are specific to the GSFC DAAC.

9.3.10 GSFC DAAC Coordinate Processing Plan and Schedules Sequence

The GSFC DAAC Coordinate Processing Plan and Schedules Sequence verifies the ability of operational users to receive updated schedules and reconfiguration directives from the EOC and SMC regarding mission related planning and processing. This sequence of tests verifies the capability to coordinate the data processing plans and schedules, either automatically or manually, through the use of software tools. This sequence verifies the capability of the operation users to coordinate, with the SMC, subscriptions, data and product dependencies tables, product generation deadlines, and standing orders.

9.3.10.1 Test Case B090395.010-GSFC DAAC History Log of EOC Plans and Schedules

The GSFC DAAC History Log of EOC Plans and Schedules verifies the capability to provide its operations staff sufficient procedures detailing the steps necessary in order to access the history log containing the EOC plans and schedules. These procedures are manual, automated, or a combination of the two. Verification by the Inspection method is used to ensure that requirements are satisfied.

Inputs necessary for this test case include distinctive real or simulated plan and schedule requests from the EOC. The following items are included in the test data sets: requests for product frequency generation and subscriptions, data and product generation deadlines, and standing orders. Requests for both standard and erroneous plans and schedules are included in the input data sets. The procedures for handling the EOC plans and schedules are validated by both automatic and manual aids. An output report is produced identifying and detecting erroneous plan and schedule entries that are received from the EOC.

9.3.10.2 Test Case B090395.020-GSFC DAAC Coordinate Updates to SMC Processing Plans and Schedules

The GSFC DAAC Coordinate Updates to SMC Processing Plans and Schedules test case verifies the capability to provide its operations staff access to sufficient procedures detailing coordination processes for SMC processing plans and schedules. These procedures are manual, automated, or a combination of the two. Verification by the Inspection method is used to ensure that requirements related to coordinating the SMC processing plans and schedule maintenance are satisfied. This test case verifies the GSFC DAAC capability to coordinate updates of SMC processing plans and schedules and follows the same test process described in section (9.1.8.1) "LaRC DAAC Coordinate Updates to SMC Processing Plans/Schedules" with the idea that the data, operations, inputs, and outputs are specific to the GSFC DAAC.

9.4 ECS at the EDC DAAC Data Ingest Operations Scenario

The ECS at the EDC DAAC Data Ingest Operations Scenario describes the data ingest services that are performed by the ECS at the EDC DAAC. These services include ingesting, processing, and archiving MODIS data received from the GSFC DAAC and Landsat-7 data ingested from the ETM. Additionally, the ECS at the EDC DAAC ingests ASTER Level 1 data from the ASTER GDS and produces higher level products from this data. For the remainder of this document, the term "EDC DAAC" is used to reference "ECS at the EDC DAAC".

This scenario verifies the capability of the EDC DAAC to ingest L0R. The L0R data is ingested from the Landsat Processing System (LPS) and stored by the EDC DAAC for user distribution.

The capability of the EDC DAAC to ingest, format, validate, and archive Landsat-7, ASTER, and MODIS higher level data products is verified in this scenario. This scenario verifies that a data receipt log is maintained to account for the various types of science data that is received (ingested) from the other data centers and the user community. Verification procedures are executed to ensure that the following data types are ingested: metadata; ancillary, correlative, and calibration; Level 1 - Level 4 data products; products status dialogs; and science software. In a case where the quality of the ingested data is unacceptable (e.g., transmission errors), this scenario verifies the capability to request the external system (e.g., ASTER GDS) to retransmit the data.

This scenario verifies the capability of the EDC DAAC to reprocess instrument related standard products, browse data products, and metadata for the AM-1 (MODIS, ASTER) mission. The capability to receive a reprocessing request and verify that the resources necessary for processing are available is verified in this scenario. This scenario verifies that the reprocessing plan is part of the active plan and that there are no other dynamic dependencies required for reprocessing and dispatching the reprocessing request. The capability to replace the old processed data products with the new data products, and update related directories and inventory files is verified in this scenario.

The EDC DAAC capability to ingest and process on-demand requests from users for processing of data products (e.g., EOS AM-1 products) currently archived by the ECS is verified in this scenario. This scenario verifies the capability to ensure that the on-demand processing request is within the pre-configured threshold, otherwise, the processing is postponed until the next plan is generated for processing requests.

This scenario verifies the capability of the EDC DAAC to process ASTER DARs, provide an interface operation with the ASTER GDS, allow users to update DARs, and provide a user interface with DAR APIs in order to access the DAR generation information. The capability to receive status on the DARs is verified in this scenario. This status information includes: confirmation or rejection of the DAR; and notification of DAR scheduling and completion. This scenario verifies the capability to receive from the ASTER GDS and product delivery status information. The product delivery status information includes the following items: requested identification, request identification and status, reason for rejection (if applicable), and adjusted start and stop times (if delayed longer than the latest completion time specified by the user).

During Release B testing, this scenario verifies the capability to support the AM-1 and Landsat-7 missions, including the ingest of ASTER (Level 1A and 1B) and MODIS (Level 2) data and the production, archive, and distribution of ASTER (Level 2) and MODIS (Level 3). Also, the capability to support Landsat-7 data archive, access, and distribution is verified in this scenario.

Additionally, this scenario verifies that the EDC DAAC fully supports the Landsat- 7 mission, ASTER and MODIS science software integration and test, and system resource management. Verification is also made to ensure the full support of user access to V0 data products.

9.4.1 EDC DAAC Level 0 Data Receipt Sequence

The EDC DAAC Level 0 Data Receipt Sequence verifies that the EDC DAAC is capable of ingesting L0R Level 0 data from the AM-1 mission platform. This sequence of tests verifies the capability to ingest Level 0 ancillary, correlative, and calibration data and update the data receipt log upon ingest of this data. Verification is also made to ensure the capability to validate, format, and archive the L0R products. The capability to insert the metadata in the directory, guide, and inventory is also verified in this sequence.

9.4.1.1 Test Case B090410.010-EDC DAAC Level 0 Data Receipt, Validation, and Formatting

The EDC DAAC Level 0 Data Receipt, Validation, and Formatting test case verifies the capability to ingest L0R Level 0, ancillary, correlative, and calibration data. The Demonstration method is used to verify that ingest requirements related to Level 0 data are satisfied. This test case verifies the capability to validate and format the ingested Landsat-7 L0R data. The Analysis and Inspection methods are used to verify that validation and format requirements are satisfied. This test verifies the ability to receive, validate, and format the Landsat-7 L0R Level 0 data and archive the data products.

9.4.1.2 Test Case B090410.020-EDC DAAC Archive L0R Data Products

The EDC DAAC Archive L0R Data Products test case verifies the capability to archive the Level 0. The Test and Demonstration methods are used to verify that Level 0 data products archive requirements are satisfied. Additionally, this test verifies that the DIT reviews the standard data summaries and analysis reports for completeness and accuracy.

9.4.2 EDC DAAC Level 1A-4 Data Receipt Sequence

The EDC DAAC Level 1A-4 Data Receipt Sequence verifies the capability of the Landsat-7, MODIS, and ASTER users to store higher level ASTER standard products, associated metadata and documentation. This sequence verifies the capability to ingest the following types of Landsat 7 and ASTER related data: data availability notices; standard data products; associated metadata, calibration, and browse data; calibration updates and metadata; documentation; science software; and activity calendar. The capability to ingest, validate, account for, check, and archive this ingested higher level data is verified in this sequence. Also, verification is made to ensure that Landsat 7 and ASTER users receive status information on their ingested higher level products. This sequence also verifies the capability to ingest MODIS Level 2 data from the GSFC DAAC.

9.4.2.1 Test Case B090420.010-EDC DAAC Data Availability Notice Receipt

The EDC DAAC Data Availability Notice Receipt test case verifies the capability to receive data availability schedules and data delivery status information for MODIS and ASTER data products. The data availability schedules indicate the times when the MODIS and ASTER data sets are available for ingest. The Demonstration method is used to verify that requirements related to data availability schedules are satisfied. The Demonstration method is used to verify that requirements related to science planning information are satisfied. This test case follows the same test process described in section (9.2.2.1) "ECS at the MSFC DAAC Data Availability Notice Receipt" with the idea that the data, operations, inputs, and expected results are specific to the EDC DAAC.

9.4.2.2 Test Case B090420.020-EDC DAAC Ingest/Accountability of Landsat-7, ASTER, and MODIS Data/Metadata

The EDC DAAC Ingest/Accountability of Landsat-7, ASTER, and MODIS Data/Metadata test case verifies the capability to ingest and account for Landsat-7, ASTER, and MODIS data products. The ASTER and MODIS data products include: Level 1A data, Level 1B - Level 3B standard products, browse products, science software, correlative data, and metadata. The Landsat-7 data consists of: L0R; correlative and calibration data; metadata; IGS metadata and associated browse data; associated calibration data and metadata; calibration updates and metadata; science software; and activity calendar information. The calibration information is necessary in order to perform calibration of the ETM+ science data. The Test method is used to verify that data/metadata ingest requirements are satisfied. This test case follows the same test process described in section (9.2.2.2) "ECS at the MSFC DAAC Ingest/Accountability of TRMM PR, TMI, and GV Data/Metadata" with the idea that the data, operations, inputs, and expected results are specific to the EDC DAAC.

9.4.2.3 Test Case B090420.030-EDC DAAC Ingest Landsat-7, ASTER, and MODIS Documentation and Validation

The EDC DAAC Ingest Landsat-7, ASTER, and MODIS Documentation and Validation test case verifies the capability to ingest and validate documentation related to the Landsat-7, ASTER, and MODIS data products. This documentation describes Level 1 - Level 3 data, science software, and calibration data related to the data products mentioned above. The documentation is formatted in various digital text formats including: Microsoft WORD, HTML, Interleaf, Postscript, and WordPerfect. The Test method is used to verify that documentation ingest requirements are satisfied. This test case follows the same test process described in section (9.2.2.3) "ECS at the MSFC DAAC Ingest TRMM PR, TMI, and GV Documentation and Validation" with the idea that the data, operations, inputs, and expected results are specific to the EDC DAAC.

9.4.2.4 Test Case B090420.040-EDC DAAC Data/Metadata Validation and Compliance Check

The EDC DAAC Data/Metadata Validation and Compliance Check test case verifies the capability to perform validation checks on the higher level Landsat-7, ASTER, and MODIS data

products. During this validation process, the data header is automatically examined to ensure that no anomalies are present in the ingested data. These data validation checks consist of: data identification, data routing, time-ordering of the data, data gaps, data redundancy, and data quality. The Test method is used to verify that data/metadata validation requirements are satisfied. This test case follows the same test process described in section (9.1.2.4) "LaRC DAAC NOAA ADC Data/Metadata Validation and Compliance Check" with the idea that the data, operations, inputs, and expected results are specific to the EDC DAAC.

9.4.2.5 Test Case B090420.050-EDC DAAC Metadata Extraction/Verification

The EDC DAAC Metadata Extraction/Verification test case verifies the capability to extract and verify metadata for the Landsat-7, ASTER, and MODIS data products. The Demonstration and Inspection methods are used to verify this test case. The capability to check for the presence of a unique granule id in the metadata header is verified. Upon ingest, metadata is extracted and the data is identified, referenced, and stored. This metadata is extracted from information contained within the data file, file/message associated with the data, or derived directly from the delivered file message. To ensure the accessibility of this data from permanent archive, this test verifies the capability to extract a limited amount of metadata. This information includes data set name, instrument name, observation time, and granule id. This test case follows the same test process described in section (9.1.2.5) "LaRC DAAC NOAA ADC Metadata Extraction/Verification" with the idea that the data, operations, inputs, and expected results are specific to the EDC DAAC.

9.4.2.6 Test Case B090420.060-EDC DAAC Data Archiving

The EDC DAAC Data Archiving test case verifies the capability to: archive the ASTER, and MODIS higher level processed data products, insert the metadata into the inventory, and update the data receipt log upon completion of the data archival process. This test verifies the capability to provide storage for the following Landsat-7, ASTER, and MODIS data: associated correlative, ancillary, and calibration data sets, as well as, metadata; Level 1B - Level 3B equivalent data products; documents; and science software. The Test and Inspection methods are used to verify that requirements related to archiving higher level processed data are satisfied. This test case follows the same test process described in section (9.1.2.6) "LaRC DAAC NOAA ADC Data Archiving" with the idea that the data, operations, inputs, and expected results are specific to the EDC DAAC.

9.4.2.7 Test Case B090420.070-EDC DAAC Maintain On-Line Directories

The EDC DAAC Maintain On-Line Directories test case verifies that guide, inventory, and directory databases are updated and an insertion is made into the directory when this information is extracted from the Landsat-7, ASTER, and MODIS data product related metadata. Three levels of user accessible metadata are maintained. These three levels are: Directory, Guide, and Inventory. The Test method is used to verify that the appropriate information is updated and inserted into the directory and inventory. This test case follows the same test process described in section (9.1.2.7) "LaRC DAAC NOAA ADC Data Maintain On-Line Directories" with the idea that the data, operations, inputs, and expected results are specific to the EDC DAAC.

9.4.3 EDC DAAC Version 0 Data Receipt Sequence

The EDC DAAC Version 0 Data Receipt Sequence verifies the capability to support user access to V0 products archived at the V0 EDC DAAC. The capability to ingest static and operational data related products, ancillary, correlative, and browse data, metadata, and documentation is verified in this sequence. Additionally, verification is performed to ensure the capability to validate, account for, check, archive, and send status information to users regarding the V0 products.

9.4.3.1 Test Case B090430.010-EDC DAAC Ingest/Accountability of V0 Data/ Metadata from the V0 DAAC

The EDC DAAC Ingest/Accountability of V0 Data/Metadata from the V0 DAAC test case verifies the capability to ingest migration metadata; data products; and ancillary, correlative, and browse data from the V0 DAAC. Verification is also made to ensure that the ingested migration data is complete, accurate, and accounted for. Two types of migration data exist: static and operational. The Test method is used to verify that data/metadata ingest and accountability requirements are satisfied. This test case verifies the EDC DAAC receipt and accountability of the V0 data from the V0 DAAC and follows the same test process described in section (9.1.3.1) "LaRC DAAC Ingest/Accountability of V0 Data from the V0 DAAC" with the idea that the data, operations, inputs, and expected results are specific to the EDC DAAC.

9.4.3.2 Test Case B090430.020-EDC DAAC Ingest Migration Documentation and Validation

The EDC DAAC Ingest Migration Documentation and Validation test case verifies the capability to ingest documentation related to the V0 migration data products. This documentation is formatted in one of the following digital text formats: ASCII text, Microsoft WORD, HTML, Interleaf, Postscript, and WordPerfect. The Test method is used to verify that requirements related to migration data documentation ingest and validation are satisfied. This test case verifies the EDC DAAC ingest and validation of V0 migration data documentation and follows the same test process described in section (9.1.3.2) "LaRC DAAC Ingest Migration Documentation and Validation" with the idea that the data, operations, inputs, and expected results are specific to the EDC DAAC.

9.4.3.3 Test Case B090430.030-EDC DAAC Migration Data/Metadata Validation and Compliance Check

The EDC DAAC Migration Data/Metadata Validation and Compliance Check test case verifies the capability to perform an automatic examination of the data header to check for anomalies in the ingested migration data. The capability to perform validation and compliance checks on the migration data/metadata ingested from the V0 DAAC is verified in this test case. A status report is generated, indicating the success or failure, of the data/metadata consistency checks. The Test method is used to verify that requirements related to the validation and compliance checking of migration data/metadata are satisfied. This test case verifies the EDC DAAC validation and compliance check of V0 migration data and follows the same test process described in section (9.1.2.4) "LaRC DAAC NOAA ADC Data/Metadata Validation and Compliance Check" with

the idea that the data, operations, inputs, and expected results are specific to Migration Data/Metadata holdings at the EDC DAAC.

9.4.3.4 Test Case B090430.040-EDC DAAC Migration Metadata Extraction/ Verification

The EDC DAAC Migration Metadata Extraction/Verification test case verifies the capability to check for the presence of a unique granule id in the metadata header. Once the ingest process is complete, metadata is extracted and the data is identified, referenced, and stored. The Demonstration and Inspection methods are used to verify that the metadata extraction/verification requirements are satisfied. This test case verifies the EDC DAAC extraction and verification of metadata and follows the same test process described in section (9.1.2.5) "LaRC DAAC NOAA ADC Metadata Extraction/Verification" with the idea that the data, operations, inputs, and expected results are specific to Migration Data/Metadata holdings at the EDC DAAC.

9.4.3.5 Test Case B090430.050-EDC DAAC Migration Data Archiving

The EDC DAAC Migration Data Archiving test case verifies the capability to provide storage for the following types of V0 migration data: data products, browse data, associated metadata and documentation, ancillary data, and correlative data. Verification is performed to ensure the capability to archive the V0 migration product data, insert the metadata into the inventory, and update the data receipt log. The Test and Inspection methods are used to verify that the V0 migration data archiving requirements are satisfied. This test case verifies the EDC DAAC archiving of the V0 migration data and follows the same test process described in section (9.1.2.6) "LaRC DAAC NOAA ADC Data Archiving" with the idea that the data, operations, inputs, and expected results are specific to Migration Data/Metadata holdings at the EDC DAAC.

9.4.3.6 Test Case B090430.060-EDC DAAC Migration Data Maintain On-Line Directories

The EDC DAAC Migration Data Maintain On-Line Directories test case verifies the capability to update the guide, inventory, and directory databases when guide and inventory data is extracted from the migration metadata. The Test method is used to verify that the directories are updated with the correct information. This test case verifies the EDC DAAC update of directories and follows the same test process described in section (9.1.2.7) "LaRC DAAC NOAA ADC Data Maintain On-Line Directories" with the idea that the data, operations, inputs, and expected results are specific to Migration Data/Metadata holdings at the EDC DAAC.

9.4.4 EDC DAAC Reprocessing Request Receipt and Processing Sequence

The EDC DAAC Reprocessing Request Receipt and Processing Sequence verifies the capability of the SCF users to request the reprocessing of ASTER and MODIS related standard products, browse data products, and associated metadata. Verification is made to ensure the capability to ingest SCF users' reprocessing requests in order to regenerate the ASTER and MODIS data products. This sequence verifies the capability to validate the reprocessing request, release the new activation plan, and produce standard and browse data products, as well as, metadata. When

the reprocessing procedure has been successfully completed, the capability to store the newly created data products on the data server and notify the SCF users of the readiness of the data for QA is verified in this sequence. The EDC DAAC supplies associated metadata cross references to the data along with the newly reprocessed products. This sequence verifies the capability to receive and process the updated assessment metadata upon the completion of SCF QA of the products. Upon completion of the reprocessing QA procedure, this sequence verifies that the SCF users are notified and an update to related directories and inventories is made to reflect the changes.

9.4.4.1 Test Case B090440.010-EDC DAAC Receipt/Validation of SCF Reprocessing Requests

The EDC DAAC Receipt/Validation of SCF Reprocessing Requests test case verifies the capability to receive EDC SCF users' reprocessing requests for ASTER and MODIS standard and browse data products, in addition to, associated metadata. A scientist prepares the Reprocessing Request by utilizing a readily available Reprocessing Request Template. The Demonstration method is used to verify that reprocessing request requirements are satisfied. This test case follows the same test process described in section (9.1.4.1) "LaRC DAAC Receipt/Validation of SCF Reprocessing Requests" with the idea that the data, operations, inputs, and expected results are specific to the EDC DAAC.

9.4.4.2 Test Case B090440.020-EDC DAAC Generation/Dispatch of SCF Reprocessing Plan

The EDC DAAC Generation/Dispatch of SCF Reprocessing Plan test case verifies the capability to generate reprocessing plans for ASTER and MODIS data products. Verification is performed to ensure that the reprocessing plan contains data dependencies, production strategy, and plan information from other applicable DAACs. The Test and Analysis methods are used to verify that reprocessing plan requirements are satisfied. In addition, this test case verifies the capability to receive reprocessing requests at regular time intervals according to a previously agreed upon schedule. The Test method is used to verify that the old plan is deactivated and replaced with the new reprocessing plan. This test case follows the same test process described in section (9.1.4.2) "LaRC DAAC Generation/Dispatch of SCF Reprocessing Plan" with the idea that the data, operations, inputs, and expected results are specific to the EDC DAAC.

9.4.4.3 Test Case B090440.030-EDC DAAC Standard and Browse Data Products Reprocessing

The EDC DAAC Standard and Browse Data Products Reprocessing test case verifies the capability to reprocess Level 1A-Level 3 ASTER and MODIS standard and browse data products, and their associated metadata. The reprocessing of data is caused by one or more of the following items: improved input data, new calibration data, improved calibration data, updated science software, required ancillary data, and the correct version of the science software. Verification is performed to ensure the capability to perform reprocessing of the ASTER and MODIS data products in accordance with the reprocessing plan. The Test and Analysis methods are used to verify that requirements related to the reprocessing of data products are satisfied.

This test case follows the same test process described in section (9.1.4.3) "LaRC DAAC Standard and Browse Data Products Reprocessing" with the idea that the data, operations, inputs, and expected results are specific to the EDC DAAC.

9.4.4.4 Test Case B090440.040-EDC DAAC Standard and Browse Data Products QA Assessment Metadata Receipt/Processing

The EDC DAAC Standard and Browse Data Products QA Assessment Metadata Receipt/Processing test case verifies the capability to receive and process the QA assessment performed on the ASTER and MODIS standard and browse data products, in addition to, the associated metadata. This test verifies the capability to receive the product QA from the designated SCF. The Test and Demonstration methods are used to verify that requirements related to QA assessment receipt and processing are satisfied. This test case follows the same test process described in section (9.1.4.4) "LaRC DAAC Standard and Browse Data Products QA Assessment Metadata Receipt/Process" with the idea that the data, operations, inputs, and expected results are specific to the EDC DAAC.

9.4.4.5 Test Case B090440.050-EDC DAAC Reprocessed Data Directories/ Inventories Update and Notification

The EDC DAAC Reprocessed Data Directories/Inventories Update and Notification test case verifies the capability to update directories and inventories associated with the ASTER and MODIS reprocessed data. The Demonstration method is used to verify that all inventories and directories regarding the reprocessed data are updated correctly. This test case verifies the capability to notify subscribed users, via the Advertising Service, that the ASTER and MODIS standard and browse data products have been reprocessed. Verification is made to ensure that the users are provided access to metadata on the newly stored data granules. The Test and Demonstration methods are used to verify that users are able to access information concerning the reprocessed ASTER and MODIS data products via the Advertising Service. This test case follows the same test process described in section (9.1.4.5) "LaRC DAAC Reprocessed Data Directories/Inventories Update and Notification" with the idea that the data, operations, inputs, and expected results are specific to the EDC DAAC.

9.4.5 EDC DAAC On-Demand Processing Sequence

The EDC DAAC On-Demand Processing Sequence verifies the ability to receive on-demand requests from users regarding the archived Landsat-7 and ASTER products. This sequence verifies the capability of users to transmit on-demand requests for MODIS and ASTER data products. The capability to perform checks to determine whether the request is within a pre-configured threshold is verified in this sequence. In the event the threshold is exceeded, the request may be deferred until the next plan. Verification is made to ensure that all required inputs are available in order for the on-demand request to be processed. If necessary input data is missing, then a request is put in for it and the request is included in the next plan. The production scheduler is notified that the request has been received and deferred until a later time.

9.4.5.1 Test Case B090450.010-EDC DAAC On-Demand Processing Request Receipt and Verification

The EDC DAAC On-Demand Processing Request Receipt and Verification test case verifies the capability to receive on-demand processing (e.g., standing orders, changes to standing orders, or product requests) and verify that the information contained in the request is complete and accurate. These on-demand processing requests are for the MODIS and ASTER data products that are currently archived. The Test method is used to verify requirements related to on-demand processing request receipt and verification. This test case follows the same test process described in section (9.1.5.1) "LaRC DAAC On-Demand Processing Request Receipt and Verification" with the idea that the data, operations, inputs, and expected results are specific to the EDC DAAC.

9.4.5.2 Test Case B090450.020-EDC DAAC On-Demand Processing Request Schedule Generation

The EDC DAAC On-Demand Processing Request Schedule Generation test case verifies the capability to generate schedules reflecting the on-demand requests received for data product processing and generation. Verification is made to ensure that the production scheduler submits a subscription for processing if one does not currently exist in the data server. The Test method is used to verify that processing plan and product generation schedule requirements are satisfied. This test case follows the same test process described in section (9.1.5.2) "LaRC DAAC On-Demand Processing Request Schedule Generation" with the idea that the data, operations, inputs, and outputs are specific to the EDC DAAC.

9.4.5.3 Test Case B090450.030-EDC DAAC On-Demand Processing and Notification

The EDC DAAC On-Demand Processing and Notification test case verifies the capability to process users' requests for data products and notify the users upon completion of the processing routine. Upon successful completion of processing the requests, a message is sent to the data server confirming completion and the data products are delivered to the requester. The Test method is used to verify requirements covered in this test case. This test case follows the same test process described in section (9.1.5.3) "EDC DAAC On-Demand Processing and Notification" with the idea that the data and operations are specific to the EDC DAAC.

9.4.6 EDC DAAC Data Acquisition Request Processing Sequence

The EDC DAAC Data Acquisition Request Processing Sequence verifies the capability to plan for and receive Level 1A and 1B ASTER data from the ASTER GDS and process the data specified in the DARs. This sequence verifies the capability to receive the following types of data: Level 1A - Level 1B ASTER data products (associated ancillary, metadata, and browse); expedited look Level 1 data products (associated ancillary, metadata, and browse); and ancillary and correlative data, including associated metadata. This sequence verifies the capability to receive status information on the DARs. The capability to receive data availability schedules for ASTER GDS data products which were requested is verified in this sequence.

9.4.6.1 Test Case B090460.010-EDC DAAC DAR Receipt, Validation, and Delivery

The EDC DAAC DAR Receipt, Validation, and Delivery test case verifies the capability to receive and validate DAR information that is used in the generation of data products from the ASTER GDS. Also, this test verifies the capability of the ASTER GDS to receive DARs for ASTER instrument data products. The EDC DAAC maintains a database that includes DAR generation information (e.g., EOC spacecraft information) for use during the DAR planning and submittal process. The Test method is used to verify this test case.

Inputs for this test case consist of descriptive ASTER information, default settings, and instrument constraint information. The ASTER GDS sends information on instrument operations and constraints that are necessary in order to formulate the DARs. This ASTER instrument constraint information contains, at a minimum, the following: descriptive information for the ASTER instrument, default settings for instrument configurable parameters, and a range of values for instrument configurable parameters. This information is stored within the database for future use in the generation of DARs. Expected results include the successful ingest and storage of the ASTER instrument operations and constraints information.

This test case verifies the capability to send ASTER DARs to the ASTER GDS. The DARs are used in the generation of ASTER data products. Inputs include information contained within the DAR (e.g., descriptive text). This information is helpful in the validation and generation of the DAR in order to proceed with processing of the ASTER instrument data. The information contained within the DAR includes, at a minimum, the following: experimenter identification and address, scientific discipline, scheduling priority and target of opportunity flag, number and description of instruments involved in the investigation, and associated product generation and generation requests. The DAR is not limited to this information. The DAR is validated before transmittal to the ASTER GDS for processing. Expected results include the successful generation and transmittal of the ASTER DAR.

9.4.6.2 Test Case B090460.020-EDC DAAC Schedule Adjudication Receipt

The EDC DAAC Schedule Adjudication Receipt test case verifies the capability to receive detailed activity schedules from the ASTER GDS in relation to the generation and processing of DARs. The Test method is used to verify this test case.

Inputs for this test case include information contained within the data activity schedules. This detailed information includes, at a minimum, the following: instrument activities, spacecraft activities necessary to support all instrument activities, spacecraft resource requirements, and instrument activities traceability to DARs. Verification is made to ensure the capability to send this activity schedule, and any further schedule updates, to the ASTER GDS in order to incorporate its plans in the processing schedule to generate the ASTER DARs. Once the schedule has been received and accepted, the ASTER GDS sends a DAR status notice upon request. The DAR status notice informs the EDC DAAC whether the DAR has been accepted or rejected. In the case of acceptance, the DAR notice includes notification of DAR scheduling and anticipated completion of processing. Additional status information includes: date and time, DAR and instrument id, request status, and implementation schedule. In the event the DAR is rejected, this test case verifies that the DAR status notice includes a reason for the rejection of

the submitted DAR. Expected results include the successful receipt by the ASTER GDS of detailed scheduled activity lists.

9.4.6.3 Test Case B090460.030-EDC DAAC DAR Processing

The EDC DAAC DAR Processing test case verifies the capability to ingest the necessary data (ASTER, ancillary, and browse) and metadata in order to process and generate the products contained within the DAR. The Demonstration method is used to verify this test case.

Inputs for this test case consist of the data availability notice, activity schedule, and the data (ancillary, ASTER, browse, metadata) that is required in order to comply with the DAR. The EDC DAAC receives all of the data that is necessary in order to generate the request contained within the ASTER DAR. The EDC DAAC polls other DAACs searching for the data products that are necessary for the processing of the DAR. When all of the dependent information is received, the EDC DAAC begins the process of validating the data for compliance. Additionally, the EDC DAAC extracts the metadata and performs validation checks ensuring the data was not corrupted during transfer. In the event of transmission problems, the EDC DAAC requests that the data be re- transmitted. Upon completion of the compliance and validation checks, the EDC DAAC continues with the processing of the ASTER data products and inserts the completed products into its archive. Upon completion of archiving, a data storage notice is sent to the provider of the ingested data and all relevant directories (guide and inventory) are updated with information concerning the newly processed data products and metadata. Expected results include the successful ingest, validation, and archiving of the data products generated by the submitted DAR. Also, this test case verifies that upon completion of the archival process, guide, inventory, and directory files are updated with applicable information concerning the new data products.

9.4.7 EDC DAAC Non-Standard Product Receipt Sequence

The EDC DAAC Non-Standard Product Receipt Sequence verifies the ability of operational users to receive non-standard products for mission related processing. This sequence of tests verifies the capability to receive data products from users either electronically or on some other form of approved media. The types of data include correlative and ancillary data, documents, science software, and instrument history logs. The capability to ingest test plans, data, and procedures to facilitate the checkout of new science software is verified in this sequence. This sequence of tests verifies the capability to receive and validate the data, following loading instructions, store the data products and notify the sender that the data has been archived.

9.4.7.1 Test Case B090470.010-EDC DAAC Ingest and Archive Non-Standard Products from Other DAACs

The EDC DAAC Ingest and Archive Non-Standard Products from Other DAACs test case verifies the capability to ingest expected non-standard data products from one or more of the other product generating DAACs. The other DAACs involved are LaRC, MSFC, GSFC, JPL, and NSIDC. Verification is also made to ensure the capability to validate and archive the ingested non-standard data. This test verifies that upon completion of the archival process, a notice is sent to the provider of the ingested data acknowledging archiving of the non-standard

data products. The Test method is used to verify that requirements related to the ingesting of non-standard data are satisfied. This test case follows the same test process described in section (9.1.6.1) "LaRC DAAC Ingest and Archive Non-Standard Products from Other DAACs" with the idea that the data, operations, inputs, and outputs are specific to the EDC DAAC.

9.4.7.2 Test Case B090470.020-EDC DAAC Ingest and Archive Non-Standard Products from MODIS SCF

The EDC DAAC Ingest and Archive Non-Standard Products from MODIS SCF test case verifies the capability to ingest expected non-standard data products from the MODIS SCF. Verification is also made to ensure the capability to validate and archive the ingested non-standard data. This test verifies that upon completion of the archival process, a notice is sent to the provider of the ingest data acknowledging archiving of the non-standard data products. The Test method is used to verify that non-standard data ingest requirements are satisfied. This test case follows the same test process described in section (9.1.6.2) "LaRC DAAC Ingest and Archive Non-Standard Products from SCFs" with the idea that the data, operations, inputs, and outputs are specific to the EDC DAAC.

9.4.7.3 Test Case B090470.030-EDC DAAC Ingest and Archive Non-Standard Products from NOAA ADC

The EDC DAAC Ingest and Archive Non-Standard Products from NOAA ADC test case verifies the capability to ingest non-standard data products from the NOAA ADC. Verification is also made to ensure the EDC DAAC's capability to assist in the validation and archiving of this ingested NOAA ADC non-standard data. This test verifies that upon completion of the archival process, a notice is sent to the provider of the ingested data acknowledging archiving of the non-standard data products. The Test method is used to verify that requirements related to the ingesting of non-standard data are satisfied. This test case follows the same test process described in section (9.1.6.3) "LaRC DAAC Ingest and Archive Non-Standard Products from NOAA ADC" with the idea that the data, operations, inputs, and outputs are specific to the EDC DAAC.

9.4.8 EDC DAAC Science Data Production Software Updates and Calibration Parameters Receipt Sequence

The EDC DAAC Science Data Production Software Updates and Calibration Parameters Receipt Sequence verifies the ability of the SSITT personnel to access the system in order to log, ingest, generate status reports and archive the science data production software delivered from the SCF. The EDC DAAC is responsible for science data production software updates for ASTER and MODIS data products. The transmission of the software is initiated when the SCF science investigator contacts the SSITT manager to coordinate and make arrangements to have the software update package electronically transferred for integration and test purposes.

9.4.8.1 Test Case B090480.010-EDC DAAC Science Data Production Software Updates Installation

The EDC DAAC Science Data Production Software Updates Installation test case verifies the capability of the SSITT to install the science software updates. This updated science software is related to science data production software used to produce ASTER and MODIS data products. This test verifies the ability of the SSITT to accurately coordinate both internal and external communications regarding the issues and impacts that are produced by each newly updated science software. The Inspection method is used to verify that requirements related to science software updates installation are satisfied. This test case follows the same test process described in section (9.1.7.1) "LaRC DAAC Science Data Production Software Updates Installation" with the idea that the data, operations, inputs, and outputs are specific to the EDC DAAC.

9.4.8.2 Test Case B090480.020-EDC DAAC Science Data Production Software Reporting

The EDC DAAC Science Data Production Software Reporting test case verifies that systems engineers, managers, and general science users accomplish the generation of site specific software reports in a prompt and accurate manner. These reports detail information concerning the ASTER and MODIS data products software that has been updated. The Inspection method is used to verify that report generation requirements are satisfied. This test case follows the same test process described in section (9.1.7.2) "LaRC DAAC Science Data Production Software Reporting" with the idea that the data, operations, inputs, and outputs are specific to the EDC DAAC.

9.4.8.3 Test Case B090480.030-EDC DAAC Science Data Production Software Archiving and Retention

The EDC DAAC Science Data Production Software Archiving and Retention test case verifies the ability of the systems engineers, managers, and general science users to access and maintain a central database storage of the EDC DAAC's ASTER and MODIS related science data production software. This test verifies the ability of the SSITT personnel and other users to efficiently store and retrieve executable and calibration coefficients related to science data production software. The Inspection method is used to verify that science data production software archiving and retention requirements are satisfied. This test case follows the same test process described in section (9.1.7.3) "LaRC DAAC Science Data Production Software Archiving and Retention" with the idea that the data, operations, inputs, and outputs are specific to the EDC DAAC.

9.4.9 EDC DAAC Coordinate Processing Plans and Schedules Sequence

The EDC DAAC Coordinate Processing Plans and Schedules Sequence verifies the ability of the operational users to receive updated schedules and reconfiguration directives from the EOC and SMC regarding mission related planning and processing. This sequence of tests verifies the ability to coordinate subscriptions, data and product dependencies tables, product generation deadlines, and standing orders. The capability to receive reconfiguration directives from the

SMC in order to coordinate schedule priorities, resolve schedule conflicts and operational assignments is verified in this sequence.

9.4.9.1 Test Case B090490.010-EDC DAAC Coordinate Updates to SMC Processing Plans and Schedules

The EDC DAAC Coordinate Updates to SMC Processing Plans and Schedules test case verifies the capability to provide its operations staff access to sufficient procedures detailing coordination and update processes for SMC processing plans and schedules. These procedures are manual, automated, or a combination of the two. Verification by the Inspection method is used to ensure that requirements related to coordinating SMC processing plans and schedule maintenance are satisfied. This test case verifies the EDC DAAC coordination of updates to SMC processing plans and schedules and follows the same test process described in section (9.1.8.1) "LaRC DAAC Coordinate Updates to SMC Processing Plans and Schedules" with the idea that the data, operations, inputs, and outputs are specific to the EDC DAAC.

9.5 ECS at the JPL DAAC Data Ingest Operations Scenario

The ECS at the JPL DAAC Data Ingest Operations Scenario details the functions and capabilities that are performed by the ECS at the JPL DAAC. The functions include the process of planning for and receiving Level 0 ADEOS II and RADAR ALT mission related data from external sources. In addition, this scenario verifies the capability of the ECS at the JPL DAAC to validate, process (both automatic and on-demand), archive, and reprocess this data. For the remainder of this document, the term "JPL DAAC" is used to reference "ECS at the JPL DAAC".

This scenario verifies the capability of the JPL DAAC to ingest SeaWinds, DFA, and MR Level 0 science, correlative, and ancillary data from external sources (e.g., DFA Source). The capability to ingest SeaWinds, DFA, and MR Level 0 data, format the Level 0 data products, schedule the data for processing, and determine resources necessary to produce the higher level data products is verified in this scenario. The capability to ingest AMSU data from Japan for use as SeaWinds ancillary data is verified in this scenario.

The capability of the JPL DAAC to support access to V0 data products is verified in this scenario. Capabilities to be tested regarding V0 data products include the migration of the V0 data products and the interoperability with the V0 system for access for remaining products.

This scenario verifies the capability of the JPL DAAC to reprocess previously archived SeaWinds, DFA, MR, and instrument related standard products, browse data products, and metadata while continuing to ingest the standard daily quota of newly received data sets from external sources. The capability to replace the old processed data products with the new data products and update related directories and inventory files is verified in this scenario.

The capability of the JPL DAAC to receive data products requiring special procedures is verified in this scenario. This scenario verifies the capability to log information (e.g., science software), ingest data, and archive science product software updates, in support of science software integration and test, that are received from the SeaWinds, DFA, and SCFs.

This scenario verifies the capability of the JPL DAAC to ingest and process users' on-demand requests in order to process data products (e.g., SeaWinds) that are currently archived by the ECS. Verification is made to ensure the capability to guarantee that in the event that input data necessary to fulfill the request is missing or unavailable, that a subscription is placed and the processing request is included in the next plan.

During Release B testing, this scenario verifies the capability to support the following functions: SeaWinds, DFA, and MR science software integration and test; SeaWinds, DFA, and MR Level 0 data ingest; production, archive, and distribution of SeaWinds (Level 1B and 2), MR Level 1 - Level 4), and DFA (Level 1 - Level 4); AMSR Level 2 data ingest; V0 data migration; and system resource management.

9.5.1 JPL DAAC Level 0 Data Receipt Sequence

The JPL DAAC Level 0 Data Receipt Sequence verifies the capability to ingest SeaWinds, DFA, and MR Level 0 in order to produce higher level data products (Level 1 thorough Level 4). This sequence verifies the capability to ingest Level 0 ancillary (AMSU data from Japan for use as SeaWinds ancillary data), calibration, and correlative data from the ADEOS II and RADAR ALT mission platforms. After receipt of the Level 0 SeaWinds, DFA, and MR data, this sequence of tests verifies the capability to perform the following steps: update the data receipt log; validate and format the data to ensure readiness for processing; generate and archive higher level SeaWinds, DFA, and MR data products; and insert the metadata into the directory, guide, and inventory.

9.5.1.1 Test Case B090510.010-JPL DAAC Level 0 Data Receipt, Validation, and Formatting

The JPL DAAC Level 0 Data Receipt, Validation, and Formatting test case verifies the capability to ingest SeaWinds, DFA, and MR Level 0, ancillary, correlative, and calibration data. The Demonstration method is used to verify that Level 0 data ingest requirements are satisfied. This test case verifies the capability to validate and format the ingested SeaWinds, DFA, and MR data that is used to generate the Level 1-4 data products. The Analysis and Inspection methods are used to verify that validation, format, and product generation requirements are satisfied. This test verifies the ability to receive, validate, and format the SeaWinds, DFA, and MR Level 0 data and generate the higher level data products. This test case follows the same test process described in section (9.1.1.1) "LaRC DAAC Level 0 Data Receipt, Validation, and Formatting" with the idea that the data, operations, inputs, and outputs are specific to the JPL DAAC.

9.5.1.2 Test Case B090510.020-JPL DAAC Metadata and Level 1-4 Data Processing

The JPL DAAC Metadata and Level 1-4 Data Processing test case verifies the capability to extract and analyze SeaWinds, DFA, and MR associated metadata, as well as, generate the Level 1-4 data products. The Analysis method is used to verify that metadata generation and higher level processing requirements are satisfied. This test verifies the DIT's ability to analyze the metadata, perform data consistency checks, and review generated analysis and status reports for completeness and accuracy. This test case follows the same test process described in section

(9.1.1.2) "LaRC DAAC Metadata and Level 1-4 Data Processing" with the idea that the data, operations, inputs, and outputs are specific to the JPL DAAC.

9.5.1.3 Test Case B090510.030-JPL DAAC Archive SeaWinds, DFA, and MR Data Products

The JPL DAAC Archive SeaWinds, DFA, and MR Data Products test case verifies the capability to archive the Level 0 and generated Level 1-4 data products. The Test and Demonstration methods are used to verify that SeaWinds, DFA, and MR Level 0 and generated Level 1-4 data products archive requirements are satisfied. This test case verifies the ability to archive the newly generated data products by following the data processing plan specific to the archival process. Additionally, this test verifies that the DIT reviews the standard data summaries and analysis reports for completeness and accuracy. This test case follows the same test process described in section (9.1.1.3) "LaRC DAAC Archive Data Products" with the idea that the data, operations, inputs, outputs are specific to the JPL DAAC.

9.5.2 JPL DAAC V0 Data Receipt Sequence

The JPL DAAC V0 Data Receipt Sequence verifies the capability to ingest V0 data from the V0 JPL DAAC. This sequence of tests verifies the capability to ingest both static and operational data related to the following items: migration data products; browse, ancillary, and correlative data; associated metadata and documentation. Also, verification is performed to ensure the capability to validate, account for, check, and permanently store V0 data. The ability of the DAAC V0 users to receive status information on their ingested products is verified in this sequence.

9.5.2.1 Test Case B090520.010-JPL DAAC Ingest/Accountability of V0 Data/ Metadata from the V0 DAAC

The JPL DAAC Ingest/Accountability of V0 Data/Metadata from the V0 DAAC test case verifies the capability to ingest migration metadata; data products; and ancillary, correlative, and browse data from the V0 DAAC. Verification is also made to ensure that the ingested migration data is complete, accurate, and accounted for. Two types of migration data exist: static and operational. The Test method is used to verify that data/metadata ingest and accountability requirements are satisfied. This test case verifies the JPL DAAC receipt and accountability of the V0 data from the V0 DAAC and follows the same test process described in section (9.1.3.1) "LaRC DAAC Ingest/Accountability of V0 Data from the V0 DAAC" with the idea that the data, operations, inputs, and expected results are specific to the JPL DAAC.

9.5.2.2 Test Case B090520.020-JPL DAAC Ingest Migration Documentation and Validation

The JPL DAAC Ingest Migration Documentation and Validation test case verifies the capability to ingest documentation related to the V0 migration data products. This documentation is formatted in one of the following digital text formats: ASCII text, Microsoft WORD, HTML, Interleaf, Postscript, and WordPerfect. The Test method is used to verify that requirements related to migration data documentation ingest and validation are satisfied. This test case verifies

the JPL DAAC ingest and validation of V0 migration data documentation and follows the same test process described in section (9.1.3.2) "LaRC DAAC Ingest Migration Documentation and Validation" with the idea that the data, operations, inputs, and expected results are specific to the JPL DAAC.

9.5.2.3 Test Case B090520.030-JPL DAAC Migration Data/Metadata Validation and Compliance Check

The JPL DAAC Migration Data/Metadata Validation and Compliance Check test case verifies the capability to perform an automatic examination of the data header to check for anomalies in the ingested migration data. The capability of the to perform validation and compliance checks on the migration data/metadata ingested from the V0 DAAC is verified in this test case. A status report is generated, indicating the success or failure, of the data/metadata consistency checks. The Test method is used to verify that requirements related to the validation and compliance checking of migration data/metadata are satisfied. This test case verifies the JPL DAAC validation and compliance check of V0 migration data and follows the same test process described in section (9.1.2.4) "LaRC DAAC-ECS NOAA ADC Data/Metadata Validation and Compliance Check" with the idea that the data, operations, inputs, and expected results are specific to Migration Data/Metadata holdings at the JPL DAAC.

9.5.2.4 Test Case B090250.020-JPL DAAC Migration Metadata Extraction/ Verification

The JPL DAAC Migration Metadata Extraction/Verification test case verifies the capability to check for the presence of a unique granule id in the metadata header. Once the ingest process is complete, metadata is extracted and the data is identified, referenced, and stored. The Demonstration and Inspection methods are used to verify that the metadata extraction/verification requirements are satisfied. This test case verifies the JPL DAAC extraction and verification of metadata and follows the same test process described in section (9.1.2.5) "LaRC DAAC NOAA ADC Metadata Extraction/Verification " with the idea that the data, operations, inputs, and expected results are specific to Migration Data/Metadata holdings at the JPL DAAC.

9.5.2.5 Test Case B090520.050-JPL DAAC Migration Data Archiving

The JPL DAAC Migration Data Archiving test case verifies the capability to provide storage for the following types of V0 migration data: data products, browse data, associated metadata and documentation, ancillary data, and correlative data. Verification is performed to ensure the capability to archive the V0 migration product data, insert the metadata into the inventory, and update the data receipt log. The Test and Inspection methods are used to verify that the V0 migration data archiving requirements are satisfied. This test case verifies the JPL DAAC archiving of the V0 migration data and follows the same test process described in section (9.1.2.6) "LaRC DAAC NOAA ADC Data Archiving" with the idea that the data, operations, inputs, and outputs are specific to Migration Data/Metadata holdings at the JPL DAAC.

9.5.2.6 Test Case B090520.060-JPL DAAC Migration Data Maintain On-Line Directories

The JPL DAAC Migration Data Maintain On-Line Directories test case verifies the capability to update the guide, inventory, and directory databases when guide and inventory data is extracted from the migration metadata. The Test method is used to verify that the directories are updated with the correct information. This test case verifies the JPL DAAC update of directories and follows the same test process described in section (9.1.2.7) "LaRC DAAC-ECS NOAA ADC Data Maintain On-Line Directories" with the idea that the data, operations, inputs, and outputs are specific to Migration Data/Metadata holdings at the JPL DAAC.

9.5.3 JPL DAAC Reprocessing Request Receipt and Processing Sequence

The JPL DAAC Reprocessing Request Receipt and Processing Sequence verifies the capability to reprocess SeaWinds, DFA, and MR related standard data products, browse data products, and associated metadata. This sequence of tests verifies that the JPL DAAC receives reprocessing requests, in order to initiate the reprocessing or SeaWinds, DFA, and MR products, from the SCF users. Upon receipt of this reprocessing request, the capability to validate the request and produce standard and browse data, as well as, its associated metadata is verified. Verification is performed to ensure the capability to store the newly created products on the appropriate data server, notify the SCF users that the products are ready for QA, and supply associated metadata cross references to the data along with the new output products. Once the reprocessed products are released by the SCF QA, the capability to receive and process the updated assessment metadata is verified in this sequence. Verification is performed to ensure that SCF users are notified of the new products and that related directories and inventories are updated to reflect the changes.

9.5.3.1 Test Case B090530.010-JPL DAAC Receipt/Validation of SCF Reprocessing Requests

The JPL DAAC Receipt/Validation of SCF Reprocessing Requests test case verifies the capability to receive JPL SCF users' reprocessing requests for SeaWinds, DFA, and MR standard and browse data products, in addition to, associated metadata. A scientist prepares the Reprocessing Request by utilizing a readily available Reprocessing Request Template. The Demonstration method is used to verify that reprocessing request requirements are satisfied. This test case follows the same test process described in section (9.1.4.1) "LaRC DAAC Receipt/Validation of SCF Reprocessing Requests" with the idea that the data, operations, inputs, and expected results are specific to the JPL DAAC.

9.5.3.2 Test Case B090530.020-JPL DAAC Generation/Dispatch of SCF Reprocessing Plan

The JPL DAAC Generation/Dispatch of SCF Reprocessing Plan test case verifies the capability to generate reprocessing plans for SeaWinds, DFA, and MR data products. Verification is performed to ensure that the reprocessing plan contains data dependencies, production strategy, and plan information from other applicable DAACs. The Test and Analysis methods are used to verify that reprocessing plan requirements are satisfied. In addition, this test case verifies the

capability to receive reprocessing requests at regular time intervals according to a previously agreed upon schedule. The Test method is used to verify that the old plan is deactivated and replaced with the new reprocessing plan. This test case follows the same test process described in section (9.1.4.2) "LaRC DAAC Generation/Dispatch of SCF Reprocessing Plan" with the idea that the data, operations, inputs, and expected results are specific to the JPL DAAC.

9.5.3.3 Test Case B090530.030-JPL DAAC Standard and Browse Data Products Reprocessing

The JPL DAAC Standard and Browse Data Products Reprocessing test case verifies the capability to reprocess Level 1A-Level 3 SeaWinds, DFA, and MR standard and browse data products, and their associated metadata. The reprocessing of data is caused by one or more of the following items: improved input data, new calibration data, improved calibration data, updated science software, required ancillary data, and the correct version of the science software. Verification is performed to ensure the capability to perform reprocessing of the SeaWinds, DFA, and MR data products in accordance with the reprocessing plan. The Test and Analysis methods are used to verify that requirements related to the reprocessing of data products are satisfied. This test case follows the same test process described in section (9.1.4.3) "LaRC DAAC Standard and Browse Data Products Reprocessing" with the idea that the data, operations, inputs, and expected results are specific to the JPL DAAC.

9.5.3.4 Test Case B090530.040-JPL DAAC Standard and Browse Data Products QA Assessment Metadata Receipt/Processing

The JPL DAAC Standard and Browse Data Products QA Assessment Metadata Receipt/Processing test case verifies the capability to receive and process the QA assessment performed on the SeaWinds, DFA, and MR standard and browse data products and associated metadata. This test verifies the capability to receive the product QA from the designated SCF. The Test and Demonstration methods are used to verify that requirements related to QA assessment receipt and processing are satisfied. This test case follows the same test process described in section (9.1.4.4) "LaRC DAAC Standard and Browse Data Products QA Assessment Metadata Receipt/Process" with the idea that the data, operations, inputs, and expected results are specific to the JPL DAAC.

9.5.3.5 Test Case B090530.050-JPL DAAC Reprocessed Data Directories/ Inventories Update and Notification

The JPL DAAC Reprocessed Data Directories/Inventories Update and Notification test case verifies the capability to update directories and inventories associated with the SeaWinds, DFA, and MR standard and browse reprocessed data. The Demonstration method is used to verify that all inventories and directories regarding the reprocessed data are updated correctly. This test case verifies the capability to notify subscribed users, via the Advertising Service, that the SeaWinds, DFA, and MR data products have been reprocessed. Verification is made to ensure that the users are provided access to metadata on the newly stored data granules. The Test and Demonstration methods are used to verify that users are able to access information concerning the reprocessed SeaWinds, DFA, and MR data products via the Advertising Service. This test

case follows the same test process described in section (9.1.4.5) "LaRC DAAC Reprocessed Data Directories/Inventories Update and Notification" with the idea that the data, operations, inputs, and expected results are specific to the JPL DAAC.

9.5.4 JPL DAAC On-Demand Processing Sequence

The JPL DAAC On-Demand Processing Sequence verifies the to ingest user on-demand requests for the archived SeaWinds, DFA, and MR data products. This sequence verifies the capability to perform checks determining whether the user's request is within a pre-defined threshold. If the threshold is exceeded, the request may be deferred until the next plan. The capability to ensure that all inputs necessary to complete the request are available is verified in this sequence. In the event necessary information is missing, the user's request is included in the next plan. The production scheduler is notified that the request has been received and deferred until a later time.

9.5.4.1 Test Case B090540.010-JPL DAAC On-Demand Processing Request Schedule Generation

The JPL DAAC On-Demand Processing Request Schedule Generation test case verifies the capability to receive requests for on-demand processing and verify that the information contained within the request is complete and accurate. The various types of these requests include standing orders, changes to standing orders, and product requests. These on-demand processing requests are for the SeaWinds, DFA, and MR data products that are archived. The Test method is used to verify that requirements related to on-demand processing receipt and verification are satisfied. This test case follows the same test process described in section (9.1.5.1) "LaRC DAAC On-Demand Processing Request Receipt and Verification" with the idea that the data, operations, inputs, and expected results are specific to the JPL DAAC.

9.5.4.2 Test Case B090540.020-JPL DAAC On-Demand Processing Request Schedule Generation

The JPL DAAC On-Demand Processing Request Schedule Generation test case verifies the capability to generate schedules that reflect the on-demand processing requests received for data product processing and generation. In the event there is not an existing subscription residing in the data server for this on-demand request, this test verifies that the production scheduler submits the necessary subscription needed in order to process the request. A query of the data base is made to verify that all necessary data inputs are present and available in order for the processing of the request to continue. The Test method is used to verify that processing plan and product generation schedule requirements are satisfied. This test case follows the same test process described in section (9.1.5.2) "LaRC DAAC On-Demand Processing Request Schedule Generation" with the idea that the data, operations, inputs, and expected results are specific to the JPL DAAC.

9.5.4.3 Test Case B090540.030-JPL DAAC On-Demand Processing and Notification

The JPL DAAC On-Demand Processing and Notification test case verifies the capability to process users' requests for data products(e.g., SeaWinds) and notify the users upon completion of

the request processing procedure. Verification is made to ensure that when all of the necessary data inputs are present, the on-demand processing request in placed in the updated "dynamic" active plan. An On-Demand Production Status message is sent to the data server confirming that the request has been successfully generated and the user is notified and receives their requested data product(s). The Test method is used to verify requirements related to processing and notification of on-demand requests. This test case follows the same test process described in section (9.1.5.3) "LaRC DAAC On-Demand Processing and Notification" with the idea that the data, operations, inputs, and expected results are specific to the JPL DAAC.

9.5.5 JPL DAAC Non-Standard Product Receipt Sequence

The JPL DAAC Non-Standard Product Receipt Sequence verifies the ability of operational users to send non-standard products for mission related processing. Users transmit these data products either electronically or on some other form of media. The type of data received may consist of correlative and ancillary data, documents, science software, and instrument history logs from other DAACs, SCFs, and NOAA. This sequence verifies the capability to ingest test plans, data, and procedures in order to facilitate the checkout of new science software. This sequence of tests verifies the capability to perform the following actions: ingest the data, follow the data loading instructions, account for and validate the data, store the data products, and notify the sender that the data has been archived.

9.5.5.1 Test Case B090550.010-JPL DAAC Ingest and Archive Non-Standard Products from Other DAACs

The JPL DAAC Ingest and Archive Non-Standard Products from Other DAACs test case verifies the capability to ingest expected non-standard data products from one or more of the other product generating DAACs. The other DAACs involved are LaRC, MSFC, GSFC, EDC, and NSIDC. Verification is also made to ensure the capability to validate and archive the ingested non-standard data. This test verifies that upon completion of the archival process, a notice is sent to the provider of the ingest data acknowledging archiving of the non-standard data products. The Test method is used to verify that requirements related to the ingesting of non-standard data are satisfied. This test case follows the same test process described in section (9.1.6.1) "LaRC DAAC-ECS Ingest and Archive Non-Standard Products from Other DAACs" with the idea that the data, operations, inputs, and outputs are specific to the JPL DAAC.

9.5.5.2 Test Case B090550.020-JPL DAAC Ingest and Archive Non-Standard Products from SCFs

The JPL DAAC Ingest and Archive Non-Standard Products from SCFs test case verifies the capability to ingest expected non-standard data products from the SeaWinds, DFA, and MR SCFs. Verification is also made to ensure the capability to validate and archive the ingested non-standard data. This test verifies that upon completion of the archival process, a notice is sent to the provide of the ingest data acknowledging archiving of the non-standard data products. The Test method is used to verify that non-standard data ingest requirements are satisfied. This test case follows the same test process described in section (9.1.6.2) "LaRC DAAC Ingest and

Archive Non-Standard Products from SCFs" with the idea that the data, operations, inputs, and outputs are specific to the JPL DAAC.

9.5.5.3 Test Case B090550.030-JPL DAAC Ingest and Archive Non-Standard Products from NOAA ADC

The JPL DAAC Ingest and Archive Non-Standard Products from NOAA ADC test case verifies the capability to ingest non-standard data products from the NOAA ADC. Verification is also made to ensure the capability to validate, process, and archive this ingested NOAA ADC non-standard data. This test verifies that upon completion of the archival process, a notice is sent to the provider of the ingested data acknowledging archiving of the non-standard data products. The Test method is used to verify that requirements related to the ingesting of non-standard data are satisfied. This test case follows the same test process described in section (9.1.6.3) "LaRC DAAC Ingest and Archive Non-Standard Products from NOAA ADC" with the idea that the data, operations, inputs, and outputs are specific to the JPL DAAC.

9.5.6 JPL DAAC Science Data Production Software Updates and Calibration Parameters Receipt Sequence

The JPL DAAC Science Data Production Software Updates and Calibration Parameters Receipt Sequence verifies the ability of the SSITT to log, ingest, generate status reports, and archive the science data production software that is delivered from the SCF. The JPL DAAC is responsible for updates to the science data production software relating to SeaWinds, DFA, and MR data products. The transmission of the software is initiated when the SCF science investigator contacts the SSITT manager to coordinate and make arrangements to have the software update package transferred electronically for integration and testing purposes.

9.5.6.1 Test Case B090560.010-JPL DAAC Science Data Production Software Updates Installation

The JPL DAAC Science Data Production Software Updates Installation test case verifies the capability of the SSITT to install the science software updates. This updated science software is related to science data production software used to produce SeaWinds, DFA, and MR data products. The science software package contains the following items: a configuration list, software programs, test data, calibration and coefficient data, and associated documentation. This test verifies the ability of the SSITT to accurately coordinate both internal and external communications regarding the issues and impacts that are produced by each newly updated science software. The Inspection method is used to verify that requirements related to science software updates installation are satisfied. This test case follows the same test process described in section (9.1.7.1) "LaRC DAAC Science Data Production Software Updates Installation" with the idea that the data, operations, inputs, and outputs are specific to the JPL DAAC.

9.5.6.2 Test Case B090560.020-JPL DAAC Science Data Production Software Reporting

The JPL DAAC Science Data Production Software Reporting test case verifies that systems engineers, managers, and general science users accomplish the generation of site specific

software reports in a prompt and accurate manner. These reports detail information concerning the SeaWinds, DFA, and MR data products software that has been updated. The Inspection method is used to verify that report generation requirements are satisfied. This test case follows the same test process described in section (9.1.7.2) "LaRC DAAC Science Data Production Software Reporting" with the idea that the data, operations, inputs, and outputs are specific to the JPL DAAC.

9.5.6.3 Test Case B090560.030-JPL DAAC Science Data Production Software Archiving and Retention

The JPL DAAC Science Data Production Software Archiving and Retention test case verifies the ability of the systems engineers, managers, and general science users to access and maintain a central database storage of the SeaWinds, DFA, and MR related science data production software. This test verifies the ability of the SSITT personnel and other users to efficiently store and retrieve executable and calibration coefficients related to science data production software. The Inspection method is used to verify that science data production software archiving and retention requirements are satisfied. This test case follows the same test process described in section (9.1.7.3) "LaRC DAAC Science Data Production Software Archiving and Retention" with the idea that the data, operations, inputs, and outputs are specific to the JPL DAAC.

9.5.7 JPL DAAC Coordinate Processing Plans and Schedules Sequence

The JPL DAAC Coordinate Processing Plans and Schedules Sequence verifies that operational users receive updated schedules and reconfiguration directives from the SMC with regards to mission related planning and processing. The ability to coordinate the data processing plans and schedules through the use of software tools, either manually or automatically, is verified in this sequence. The capability of the users to receive reconfiguration directives from the SMC to coordinate schedule priorities, resolve schedule conflicts, and operational assignments is verified in this sequence.

9.5.7.1 Test Case B090570.010-JPL DAAC Coordinate Updates to SMC Processing Plans and Schedules

The JPL DAAC Coordinate Updates to SMC Processing Plans and Schedules test case verifies the capability to provide its operations staff access to sufficient procedures detailing coordination processes for SMC processing plans and schedules. These procedures are manual, automated, or a combination of the two. Verification by the Inspection method is used to ensure that requirements related to coordinating SMC processing plans and schedule maintenance are satisfied. This test case verifies the JPL DAAC maintenance of updates to SMC processing plans and schedules and follows the same test process described in section (9.1.8.1) "LaRC DAAC Coordinate Updates to SMC Processing Plans and Schedules" with the idea that the data, operations, inputs, and outputs are specific to the JPL DAAC.

9.6 ECS at the NSIDC DAAC Data Ingest Operations Scenario

The ECS at the NSIDC DAAC Data Ingest Operations Scenario details the functions and capabilities that are performed by the ECS at the NSIDC DAAC regarding the ingest of AM-1 mission related data. These activities include the ingesting, formatting, processing/reprocessing, and archiving of MODIS data. For the remainder of this document, the term "NSIDC DAAC" is used to reference "ECS at the NSIDC DAAC".

The NSIDC DAAC capability to ingest MODIS Level 2 data is verified in this scenario. This scenario verifies the capability to perform the following actions: receive data arrival notices and MODIS higher level data from the GSFC DAAC; verify that the data receipt process is complete and header information is accurate; extract metadata and verify the information; archive the metadata; and maintain an on-line directory.

This scenario verifies the NSIDC DAAC capability to reprocess MODIS data. Verification is made to ensure that the NSIDC DAAC receives a Data Request indicating the archived MODIS data that is needed to complete the reprocessing activity. The capability to replace the previously processed data products with the newly processed data products, and update related directories and inventory files is verified in this scenario.

During Release B acceptance testing, this scenario verifies the capability of the NSIDC DAAC to perform the following functions: full support of the AM-1 mission; MODIS Level 2 data ingest; MODIS Level 3 production, archive, and distribution; processing of users' on-demand requests; V0 data migration; and system resource management.

9.6.1 NSIDC DAAC MODIS Level 2 Data Receipt Sequence

The NSIDC DAAC MODIS Level 2 Data Receipt Sequence verifies the capability to ingest MODIS Level 2 data. This sequence of tests verifies the capability to receive a data arrival notice, indicating the availability of the MODIS data, from the GSFC DAAC. After ingest of the MODIS Level 2 data, this sequence verifies the capability to validate, format, quality check, and archive the ingested higher level data. Verification is also made to ensure that the provider of the ingested data receives status information concerning the higher level data.

9.6.1.1 Test Case B090610.010-NSIDC DAAC Data Availability Notice Receipt

The NSIDC DAAC Data Availability Notice Receipt test case verifies the capability to receive data availability schedules and data delivery status from the GSFC DAAC concerning MODIS Level 2 data sets. The data availability schedules indicate the times when the MODIS data sets are available for ingest. The Demonstration method is used to verify that requirements related to data availability schedules are satisfied. This test case follows the same test process described in section (9.2.2.1) "ECS at the MSFC DAAC Data Availability Notice Receipt" with the idea that the data, operations, inputs, and expected results are specific to the NSIDC DAAC.

9.6.1.2 Test Case B090610.020-NSIDC DAAC Ingest/Accountability of MODIS Data/Metadata

The NSIDC DAAC Ingest/Accountability of MODIS Data/Metadata test case verifies the capability to ingest and account for MODIS data products including: Level 2 data, standard products, browse products, science software, correlative data, and metadata. The Test method is used to verify that higher level ingest requirements are satisfied. This test case follows the same test process described in section (9.2.2.2) "ECS at the MSFC DAAC Ingest/Accountability of TRMM PR, TMI, and GV Data/Metadata" with the idea that the data, operations, inputs, and expected results are specific to the NSIDC DAAC.

9.6.1.3 Test Case B090610.030-NSIDC DAAC Ingest MODIS Documentation and Validation

The NSIDC DAAC Ingest MODIS Documentation and Validation test case verifies the capability to ingest and validate MODIS related documentation. This documentation describes Level 2 data, science software, and calibration data related to the MODIS data products. The Test method is used to verify that requirements related to the documentation ingest are satisfied. This test case follows the same test process described in section (9.2.2.3) "ECS at the MSFC DAAC Ingest TRMM PR, TMI, and GV Documentation and Validation" with the idea that the data, operations, inputs, and expected results are specific to the NSIDC DAAC.

9.6.1.4 Test Case B090610.040-NSIDC DAAC Data/Metadata Validation and Compliance Check

The NSIDC DAAC Data/Metadata Validation and Compliance Check test case verifies the capability to perform validation checks on the Level 2 MODIS data products ingested from the GSFC DAAC. During this validation process, the data header is automatically examined to ensure that the data has not been corrupted. These data validation checks consist of: data identification, data routing, time-ordering of the data, data gaps, data redundancy, and data quality. The Test method is used to verify that data and metadata validation requirements are satisfied. This test case follows the same test process described in section (9.1.2.4) "LaRC DAAC NOAA ADC Data/Metadata Validation and Compliance Check" with the idea that the data, operations, inputs, and expected results are specific to the NSIDC DAAC.

9.6.1.5 Test Case B090610.050-NSIDC DAAC Metadata Extraction/Verification

The NSIDC DAAC Metadata Extraction/Verification test case verifies the capability to extract and verify the metadata associated with the MODIS data products. The Demonstration and Inspection methods are used to verify that metadata extraction and verification requirements are satisfied. The capability to check for the presence of a unique granule id in the metadata header is verified. Upon ingest, metadata is extracted and the data is identified, referenced, and stored. This metadata is extracted from information contained within the data file, file/message associated with the data, or derived directly from the delivered file message. A limited amount of metadata is extracted and includes: data set name, instrument name, observation time, and granule id. This test follows the same test process described in section (9.1.2.5) "LaRC DAAC

NOAA ADC Metadata Extraction/Verification" with the idea that the data, operations, inputs, and expected results are specific to the NSIDC DAAC.

9.6.1.6 Test Case B090610.060-NSIDC DAAC Data Archiving

The NSIDC DAAC Data Archiving test case verifies the capability to provide storage for the higher level processed MODIS data products, insert the metadata into the inventory, and update the data receipt log upon completion of the data archival process. Verification is also made to ensure that guide, inventory, and directory information is included in a notice to store the higher level products. The Test and Inspection methods are used to verify that higher level data archiving requirements are satisfied. This test case follows the same test process described in section (9.1.2.6) "LaRC DAAC NOAA ADC Data Archiving" with the idea that the data, operations, inputs, and expected results are specific to the NSIDC DAAC.

9.6.1.7 Test Case B090610.070-NSIDC DAAC Maintain On-Line Directories

The NSIDC DAAC Maintain On-Line Directories test case verifies that guide, inventory, and directory databases are updated and an insertion is made into the directory when this information is extracted from the MODIS data product related metadata. There are three levels of user accessible metadata that are maintained: Directory, Guide, and Inventory. The Test method is used to verify that the appropriate information is updated and inserted into the directory, guide, and inventory. This test case follows the same test process described in section (9.1.2.7) "LaRC DAAC NOAA ADC Data Maintain On-Line Directories" with the idea that the data, operations, inputs, and expected results are specific to the NSIDC DAAC.

9.6.2 NSIDC DAAC Version 0 Data Receipt Sequence

The NSIDC DAAC Version 0 Data Receipt Sequence verifies the capability to ingest V0 migration data from the V0 NSIDC DAAC. V0 migration data can be defined either as static or operational data. This sequence verifies the capability to ingest the following types of static data: migration data products; browse data; associated metadata and documentation; and ancillary and correlative data. Verification is also made to ensure that the NSIDC DAAC ingests operational data related data products, browse data, and associated metadata. This sequence of tests verifies the capability to validate, account for, format, check and permanently store V0 data. The ability of the DAAC V0 users to receive status information on their ingested products is also verified in this sequence.

9.6.2.1 Test Case B090620.010-NSIDC DAAC Ingest/Accountability of V0 Data/ Metadata from the V0 DAAC

The NSIDC DAAC Ingest/Accountability of V0 Data/Metadata from the V0 DAAC test case verifies the capability to ingest migration metadata; data products; and ancillary, correlative, and browse data from the V0 DAAC. Verification is also made to ensure that the ingested migration data is complete, accurate, and accounted for. Two types of migration data exist: static and operational. The Test method is used to verify that data/metadata ingest and accountability requirements are satisfied. This test case verifies the NSIDC DAAC receipt and accountability of the V0 data from the V0 DAAC and follows the same test process described in section

(9.1.3.1) "LaRC DAAC Ingest/Accountability of V0 Data from the V0 DAAC" with the idea that the data, operations, inputs, and expected results are specific to the NSIDC DAAC.

9.6.2.2 Test Case B090620.020-NSIDC DAAC Ingest Migration Documentation and Validation

The NSIDC DAAC Ingest Migration Documentation and Validation test case verifies the capability to ingest documentation related to the V0 migration data products. This documentation is formatted in one of the following digital text formats: ASCII text, Microsoft WORD, HTML, Interleaf, Postscript, and WordPerfect. The Test method is used to verify that requirements related to migration data documentation ingest and validation are satisfied. This test case verifies the NSIDC DAAC ingest and validation of V0 migration data documentation and follows the same test process described in section (9.1.3.2) "LaRC DAAC Ingest Migration Documentation and Validation" with the idea that the data, operations, inputs, and expected results are specific to the NSIDC DAAC.

9.6.2.3 Test Case B090620.030-NSIDC DAAC Migration Data/Metadata Validation and Compliance Check

The NSIDC DAAC Migration Data/Metadata Validation and Compliance Check test case verifies the capability to perform an automatic examination of the data header to check for anomalies in the ingested migration data. The capability to perform validation and compliance checks on the migration data/metadata ingested from the V0 DAAC is verified in this test case. A status report is generated, indicating the success or failure, of the data/metadata consistency checks. The Test method is used to verify that requirements related to the validation and compliance checking of migration data/metadata are satisfied. This test case verifies the NSIDC DAAC validation and compliance check of V0 migration data and follows the same test process described in section (9.1.2.4) "LaRC DAAC NOAA ADC Data/Metadata Validation and Compliance Check" with the idea that the data, operations, inputs, and expected results are specific to the NSIDC DAAC.

9.6.2.4 Test Case B090620.040-NSIDC DAAC Migration Metadata Extraction/ Verification

The NSIDC DAAC Migration Metadata Extraction/Verification test case verifies the capability to check for the presence of a unique granule id in the metadata header. Once the ingest process is complete, metadata is extracted and the data is identified, referenced, and stored. The Demonstration and Inspection methods are used to verify that the metadata extraction/verification requirements are satisfied. This test case verifies the NSIDC DAAC extraction and verification of metadata and follows the same test process described in section (9.1.2.5) "LaRC DAAC NOAA ADC Metadata Extraction/Verification" with the idea that the data, operations, inputs, and expected results are specific to the NSIDC DAAC.

9.6.2.5 Test Case B090620.050-NSIDC DAAC Migration Data Archiving

The NSIDC DAAC Migration Data Archiving test case verifies the capability to provide storage for the following types of V0 migration data: data products, browse data, associated metadata

and documentation, ancillary data, and correlative data. Verification is performed to ensure the capability to archive the V0 migration product data, insert the metadata into the inventory, and update the data receipt log. The Test and Inspection methods are used to verify that the V0 migration data archiving requirements are satisfied. This test case verifies the NSIDC DAAC archiving of the V0 migration data and follows the same test process described in section (9.1.2.6) "LaRC DAAC NOAA ADC Data Archiving" with the idea that the data, operations, inputs, and expected results are specific to Migration Data/Metadata holdings at the NSIDC DAAC.

9.6.2.6 Test Case B090620.060-NSIDC DAAC Migration Data Maintain On-Line Directories

The NSIDC DAAC Migration Data Maintain On-Line Directories test case verifies the capability to update the guide, inventory, and directory databases when guide and inventory data is extracted from the migration metadata. The Test method is used to verify that the directories are updated with the correct information. This test case verifies the NSIDC DAAC update of directories and follows the same test process described in section (9.1.2.7) "LaRC DAAC NOAA ADC Data Maintain On-Line Directories" with the idea that the data, operations, inputs, and expected results are specific to Migration Data/Metadata holdings at the NSIDC DAAC.

9.6.3 NSIDC DAAC Reprocessing Request Receipt and Processing Sequence

The NSIDC DAAC Reprocessing Request Receipt and Processing Sequence verifies the capability of the SCF users to request the reprocessing of MODIS data ingested from the GSFC DAAC. The types of MODIS data include standard data products, browse data products, and associated metadata. This sequence verifies the capability to validate the reprocessing request, dispatch the plan for activation, and produce the standard and browse data products, in addition to its associated metadata. When the reprocessing procedure has been successfully completed, this sequence verifies that the NSIDC DAAC stores the newly created products on the appropriate data server, notifies the SCF users that the products are ready for QA, and supplies the associated metadata cross references to the data along with the newly reprocessed products. Once the reprocessed products are released by the SCF QA, this sequence verifies the capability to receive and process the updated assessment metadata. Upon completion of the reprocessing QA procedure, this sequence verifies that the SCF users are notified and an update to related directories and inventories is made reflecting the changes.

9.6.3.1 Test Case B090630.010-NSIDC DAAC Receipt/Validation of SCF Reprocessing Requests

The NSIDC DAAC Receipt/Validation of SCF Reprocessing Requests test case verifies the capability to receive NSIDC SCF users' reprocessing requests for MODIS standard and browse data products, in addition to, associated metadata. A scientist prepares the Reprocessing Request by utilizing a readily available Reprocessing Request Template. The Demonstration method is used to verify that reprocessing request requirements are satisfied. This test case follows the same test process described in section (9.1.4.1) "LaRC DAAC Receipt/Validation of SCF

Reprocessing Requests" with the idea that the data, operations, inputs, and expected results are specific to the NSIDC DAAC.

9.6.3.2 Test Case B090630.020-NSIDC DAAC Generation/Dispatch of SCF Reprocessing Plan

The NSIDC DAAC Generation/Dispatch of SCF Reprocessing Plan test case verifies the capability to generate reprocessing plans for MODIS data products. Verification is performed to ensure that the reprocessing plan contains data dependencies, production strategy, and plan information from other applicable DAACs. The Test and Analysis methods are used to verify that reprocessing plan requirements are satisfied. In addition, this test case verifies the capability to receive reprocessing requests at regular time intervals according to a previously agreed upon schedule. The Test method is used to verify that the old plan is deactivated and replaced with the new reprocessing plan. This test case follows the same test process described in section (9.1.4.2) "LaRC DAAC Generation/Dispatch of SCF Reprocessing Plan" with the idea that the data, operations, inputs, and expected results are specific to the NSIDC DAAC.

9.6.3.3 Test Case B090630.030-NSIDC DAAC Standard and Browse Data Products Reprocessing

The NSIDC DAAC Standard and Browse Data Products Reprocessing test case verifies the capability to reprocess Level 1A-Level 3 MODIS standard and browse data products and their associated metadata. The reprocessing of data is caused by one or more of the following items: improved input data, new calibration data, improved calibration data, updated science software, required ancillary data, and the correct version of the science software. Verification is performed to ensure the capability to perform reprocessing of the MODIS data products in accordance with the reprocessing plan. The Test and Analysis methods are used to verify that requirements related to the reprocessing of data products are satisfied. This test case follows the same test process described in section (9.1.4.3) "LaRC DAAC Standard and Browse Data Products Reprocessing" with the idea that the data, operations, inputs, and expected results are specific to the NSIDC DAAC.

9.6.3.4 Test Case B090630.040-NSIDC DAAC Standard and Browse Data Products QA Assessment Metadata Receipt/Processing

The NSIDC DAAC Standard and Browse Data Products QA Assessment Metadata Receipt/Processing test case verifies the capability to receive and process the QA assessment performed on the MODIS standard and browse data products and associated metadata. This test verifies the capability to receive the product QA from the designated SCF. The Test and Demonstration methods are used to verify that requirements related to QA assessment receipt and processing are satisfied. This test case follows the same test process described in section (9.1.4.4) "LaRC DAAC Standard and Browse Data Products QA Assessment Metadata Receipt/Process" with the idea that the data, operations, inputs, and expected results are specific to the NSIDC DAAC.

9.6.3.5 Test Case B090630.050-NSIDC DAAC Reprocessed Data Products Directories/Inventories Update and Notification

The NSIDC DAAC Reprocessed Standard and Browse Data Products Directories/Inventories Update and Notification test case verifies the capability to update directories and inventories associated with the MODIS reprocessed standard and browse data. The Demonstration method is used to verify that all inventories and directories regarding the reprocessed data are updated correctly. This test case verifies the capability to notify subscribed users, via the Advertising Service, that the MODIS data products have been reprocessed. Verification is made to ensure that the users are provided access to metadata on the newly stored data granules. The Test and Demonstration methods are used to verify that users are able to access information concerning the reprocessed MODIS data products via the Advertising Service. This test case follows the same test process described in section (9.1.4.5) "LaRC DAAC Reprocessed Data Directories/Inventories Update and Notification" with the idea that the data, operations, inputs, and expected results are specific to the NSIDC DAAC.

9.6.4 NSIDC DAAC On-Demand Processing Sequence

The NSIDC DAAC On-Demand Processing Sequence verifies the ability to receive on-demand processing requests from users regarding the MODIS data archived at the data center. The capability to perform checks to determine whether the request is within a pre-configured threshold is verified in this sequence. If the threshold is exceeded, the user's request may be deferred until the next plan is executed for processing. Verification is made to ensure that all required inputs are available in order for the on-demand request to be processed. If necessary input data is missing, then a request is put in for the missing data and the request is included in the next plan. The production scheduler is notified that the request has been received and deferred until a later time.

9.6.4.1 Test Case B090640.010-NSIDC DAAC On-Demand Processing Request Receipt and Verification

The NSIDC DAAC On-Demand Processing Request Receipt and Verification test case verifies the capability to receive requests for On-Demand processing (e.g., standing orders, changes to standing orders, or product requests) and verify that the information contained within the request is complete and accurate. These on-demand requests are for the MODIS data products that are archived. This test verifies that in the event the request contains deadline conditions that cannot be met at the present time, the NSIDC DAAC sends a Reject On-Demand Production message indicating requester identification, request status, and reason for the rejection. The Test method is used to verify requirements covered in this test case. This test case follows the same test process described in section (9.1.5.1) "LaRC DAAC On-Demand Processing Request Receipt and Verification" with the idea that the data, operations, inputs, and expected results are specific to the NSIDC DAAC.

9.6.4.2 Test Case B090640.020-NSIDC DAAC On-Demand Processing Request Schedule Generation

The NSIDC DAAC On-Demand Processing Request Schedule Generation test case verifies the capability to generate schedules reflecting the on-demand requests received for MODIS data product processing and generation. In the event a subscription does not currently exist for the request, verification is made to ensure that the production scheduler submits a subscription matching the on-demand processing request. The Test method is used to verify that requirements related to the processing plan and product generation schedule are satisfied. This test case follows the same test process described in section (9.1.5.2) "NSIDC DAAC On-Demand Processing Request Schedule Generation" with the idea that the data, operations, inputs, and expected results are specific to the NSIDC DAAC.

9.6.4.3 Test Case B090640.030-NSIDC DAAC On-Demand Processing and Notification

The NSIDC DAAC On-Demand Processing and Notification test case verifies the capability to process users' requests for MODIS data products and notify the users upon completion of processing their requests. Upon completion of processing the on-demand request, the processor sends a Complete Notification message for all of the executables related to the on-demand request. The Test method is used to verify requirements covered in this test case. This test case follows the same test process described in section (9.1.5.3) "LaRC DAAC On-Demand Processing and Notification" with the idea that the data, operations, inputs, and expected results are specific to the NSIDC DAAC.

9.6.5 NSIDC DAAC Non-Standard Product Receipt Sequence

The NSIDC DAAC Non-Standard Product Receipt sequence verifies the ability of operational users to send non-standard products for mission related processing. Users can transmit these data products either electronically or on some other form of media. The type of data received may consist of correlative and ancillary data, documents, science software, and instrument history logs from other DAACs. This sequence verifies the capability to ingest test plans, data, and procedures in order to facilitate the checkout of new science software. This sequence of tests verifies the capability to perform the following actions: ingest the data, follow the data loading instructions, account for and validate the data, store the data products, and notify the sender that the data has been archived.

9.6.5.1 Test Case B090650.010-NSIDC DAAC Ingest and Archive Non-Standard Products from Other DAACs

The NSIDC DAAC Ingest and Archive Non-Standard Products from Other DAACs verifies the capability to ingest expected non-standard data products from one or more of the other product generating DAACs. The other DAACs involved are LaRC, MSFC, EDC, JPL, and GSFC. Verification is also made to ensure the capability to validate and archive of the ingested non-standard data. This test verifies that upon completion of the archival process, a notice is sent to the provider of the ingested data acknowledging archiving of the non-standard data products. The Test method is used to verify that requirements related to the ingesting of non-standard data

are satisfied. This test case follows the same test process described in section (9.1.6.1) "LaRC DAAC Ingest and Archive Non-Standard Products from Other DAACs" with the idea that the data, operations, inputs, and outputs are specific to the NSIDC DAAC.

9.6.5.2 Test Case B090650.020-NSIDC DAAC Ingest and Archive Non-Standard Products from MODIS SCF

The NSIDC DAAC Ingest and Archive Non-Standard Products from MODIS SCF verifies the capability to ingest expected non-standard data products from the MODIS SCF. Verification is also made to ensure the capability to validate and archive the ingested non-standard data. This test verifies that upon completion of the archiving process, a notice is sent to the provider of the ingest data acknowledging archiving of the non-standard data products. The Test method is used to verify that non-standard data ingest requirements are satisfied. This test case follows the same test process described in section (9.1.6.2) "LaRC DAAC Ingest and Archive Non-Standard Products from SCFs" with the idea that the data, operations, inputs, and outputs are specific to the NSIDC DAAC.

9.6.6 NSIDC DAAC Science Data Production Software Updates and Calibration Parameters Receipt Sequence

The NSIDC DAAC Science Data Production Software Updates and Calibration Parameters Receipt Sequence verifies the ability of the SSITT to log, ingest, generate status reports, and archive the science data production software, including calibration data, that is delivered from the SCF. The NSIDC DAAC is responsible for updates to the science data production software related to MODIS data products. The transmission of the software is initiated when the SCF science investigator contacts the SSITT manager to coordinate and make arrangements to have the software update package transferred electronically for integration and testing purposes.

9.6.6.1 Test Case B090660.010-NSIDC DAAC Science Data Production Software Updates Installation

The NSIDC DAAC Science Data Production Software Updates Installation test case verifies the capability of the SSITT to install the science software updates. These updated science software are related to science data production software used to produce MODIS data products. This test verifies the ability of the SSITT to accurately coordinate both internal and external communications regarding the issues and impacts that are produced by each newly updated science software. The Inspection method is used to verify that requirements related to science software updates installation are satisfied. This test case follow the same test process described in section (9.1.7.1) "LaRC DAAC Science Data Production Software Updates Installation" with the idea that the data, operations, inputs, and outputs are specific to the NSIDC DAAC.

9.6.6.2 Test Case B090660.020-NSIDC DAAC Science Data Production Software Reporting

The NSIDC DAAC Science Data Production Software Reporting test case verifies that systems engineers, managers, and general science users accomplish the generation of site specific software reports in a prompt and accurate manner. These reports detail information concerning

the MODIS data products software that has been updated. The Inspection method is used to verify that report generation requirements are satisfied. This test case follows the same test process described in section (9.1.7.2) "LaRC DAAC Science Data Production Software Reporting Test Case" with the idea that the data, operations, inputs, and outputs are specific to the NSIDC DAAC.

9.6.6.3 Test Case B090660.030-NSIDC DAAC Science Data Production Software Archiving and Retention Test Case

The NSIDC DAAC Science Data Production Software Archiving and Retention test case verifies the ability of the systems engineers, managers, and general science users to access and maintain a central database storage of the NSIDC DAAC' MODIS related science data production software. This test verifies the ability of the SSITT personnel and other users to efficiently store and retrieve executable and calibration coefficients related to science data production software. The Inspection method is used to verify that science data production software archiving and retention requirements are satisfied. This test case follows the same test process described in section (9.1.7.3) "LaRC DAAC Science Data Production Software Archiving and Retention" with the idea that the data, operations, inputs, and outputs are specific to the NSIDC DAAC.

9.6.7 NSIDC DAAC Coordinate Processing Plans and Schedules Sequence

The NSIDC DAAC Coordinate Processing Plans and Schedules Sequence verifies that operational users receive updated schedules and reconfiguration directives from the EOC and SMC with regards to mission related planning and processing. The ability to coordinate the data processing plans and schedules through the use of software tools, either manually or automatically, is verified in this sequence. The capability of the users to receive reconfiguration directives from the SMC to coordinate schedule priorities, resolve scheduled conflicts, and operational assignments is verified in this sequence.

9.6.7.1 Test Case B090670.010-NSIDC DAAC Coordinate Updates to SMC Processing Plans and Schedules

The NSIDC DAAC Coordinate Updates to SMC Processing Plans and Schedules test case verifies the capability to provide its operations staff access to sufficient procedures detailing coordinating processes for SMC processing plans and schedules. These procedures are manual, automated, or a combination of the two. Verification by the Inspection method is used to ensure that requirements related to coordinating SMC processing plans and schedule maintenance are satisfied. This test case verifies the NSIDC DAAC maintenance of coordinating to SMC processing plans and schedules and follows the same test process described in section (9.1.8.1) "LaRC DAAC Coordinate Updates to SMC Processing Plans and Schedules" with the idea that the data, operations, inputs, and outputs are specific to the NSIDC DAAC.

9.7 ECS at the ASF DAAC Data Ingest Operations Scenario

The ECS at the ASF DAAC Data Ingest Operations Scenario details the functions and capabilities that are performed by the ECS at the ASF DAAC. These activities include the

following activities: catalog and archive for ERS, JERS, and RADARSAT data; archive of SAR derived products; and ASF-wide statistical accounting/reporting. For the remainder of this document, the term "ASF DAAC" is used to reference "ECS at the ASF DAAC".

This scenario verifies the capability of the ASF DAAC to maintain a catalog of raw signal data consisting of ERS-1/2, JERS-1, and RADARSAT data. The capability to maintain a catalog and archive the migration of existing lo-res Level 1 and derived Level 2 products is verified in this scenario. Verification is made to ensure the capability to provide temporary storage for hi-res Level 1 products to be used in distribution.

The ASF DAAC capability to provide access and distribution of the data held in the archive is verified in this scenario. This scenario verifies the capability to provide a user interface enabling users to receive products and information currently archived by the ECS.

During Release B acceptance testing, the following capabilities are verified in this scenario: interface to the Alaska SAR archive for the access and distribution of Level 0 - Level 2 ERS-1, JERS-1, ERS-2, and RADARSAT data; archive of selected Level 1 and 2 ERS-1, JERS-1, ERS-2, and RADARSAT data; and V0 data migration.

9.7.1 ASF DAAC Data Archive Sequence

The ASF DAAC Data Archive Sequence verifies the capability of the ASF DAAC to archive Level 0 - Level 2 ERS-1, JERS-1, ERS-2, and RADARSAT catalog data ingested from the Receiving Ground Station (RGS) and other external sources. The ASF DAAC capability to maintain a catalog of this data is verified in this sequence. Verification is also made to ensure the capability of the ASF DAAC to account for, archive, and maintain directories for selected Level 1 and 2 ERS-1, JERS-1, ERS-2, and RADARSAT data.

9.7.1.1 Test Case B090710.010-ASF DAAC Data Arrival Notice

The ASF DAAC Data Arrival Notice test case verifies the capability of the ASF DAAC to receive a notice detailing the availability and planned arrival of ERS-1 and 2, JERS-1, and RADARSAT catalog data that is received from the RGS and other external sources. The Test method is used to verify this test case. Inputs for this test case consist of the information detailed within the data arrival notice including data type, file size, and delivery information. The DIT reviews the data arrival notice and verifies that the data listed on the notice has been sent by the RGS. Expected results include the receipt of the data arrival notice.

9.7.1.2 Test Case B090710.020-ASF DAAC Ingest/Accountability of ERS, JERS, and RADARSAT Catalog/Metadata

The ASF DAAC Ingest/Accountability of ERS, JERS, and RADARSAT Catalog/Metadata test case verifies the capability to ingest and account for ERS, JERS, and RADARSAT data products ingested from the RGS and other external sources. Verification is made to ensure that the ingested data is complete and accurate. This test verifies that in the event of transmission difficulties, the data provider (i.e., RGS) is notified by a request from the ASF DAAC to retransmit the data. The Test method is used to verify that ingest requirements are satisfied.

This test case follows the same test process described in section (9.2.2.2) "ECS at the MSFC DAAC Ingest/Accountability of TRMM PR, TMI, and GV Data/Metadata" with the idea that the data, operations, inputs, and expected results are specific to the ASF DAAC.

9.7.1.3 Test Case B090710.030-ASF DAAC Ingest ERS, JERS, and RADARSAT Documentation and Validation

The ASF DAAC Ingest ERS, JERS, and RADARSAT Documentation and Validation test case verifies the capability to ingest and validate documentation related to the ingested ERS, JERS, and RADARSAT data products. The documentation is ingested in one or more of the following digital text formats: ASCII text, Microsoft WORD, HTML, Interleaf, Postscript, and WordPerfect. The Test and Demonstration methods are used to verify that requirements related to the ingest and validation of documentation are satisfied. This test case follows the same test process described in section (9.2.2.3) "ECS at the MSFC DAAC Ingest TRMM PR, TMI, and GV Documentation and Validation" with the idea that the data, operations, inputs, and expected results are specific to the ASF DAAC.

9.7.1.4 Test Case B090710.040-ASF DAAC Data Archiving

The ASF DAAC Data Archiving test case verifies the capability to archive the ERS, JERS, and RADARSAT catalog/metadata, insert the metadata into the inventory, and update the data receipt log upon completion of the archival process. Verification is also made to ensure that guide, inventory, and directory information is included in a notice to store the catalog data products. The Test and Inspection methods are used to verify data archive requirements are satisfied. Inputs for this test case include information detailed within the data check storage report. The DIT reviews this storage report and verifies that all of the data products listed on the data availability notice are accounted for and successfully archived. Verification is made to ensure the capability to maintain storage inventories that define the physical location of files, in addition to, providing an inventory system capable of uniquely identifying and tracking the physical location of each granule. Expected results include the successful archiving of the ERS, JERS, and RADARSAT catalog/metadata products.

9.7.1.5 Test Case B090710.050-ASF DAAC Maintain On-Line Directories

The ASF DAAC Maintain On-Line Directories test case verifies that guide, inventory, and directory databases are updated and an insertion is made into the directory when this information is extracted from the ERS, JERS, and RADARSAT related metadata. Three levels of user accessible metadata are maintained: Directory, Guide, and Inventory. The Test method is used to verify that the appropriate information is updated and inserted into the ASF DAAC directory, guide, and inventory. This test case follows the same test process described in section (9.1.2.7) "LaRC DAAC NOAA ADC Data Maintain On-Line Directories" with the idea that the data, operations, inputs, and expected results are specific to the ASF DAAC.

9.7.2 ASF DAAC V0 Data Receipt Sequence

The ASF DAAC V0 Data Receipt Sequence verifies the capability to ingest migration V0 data (static or operational) from the V0 ASF DAAC. Static data is defined as data which is already

archived at the V0 DAAC, where as, operational data is described as data which is produced at a DAAC V0 processor. This sequence of tests verifies the capability to receive static data related migration data products, browse data, associated metadata, documentation, ancillary, and correlative data. This sequence verifies the capability to receive operational data related to the following: operational data products, browse data, and associated metadata. Verification is performed to ensure the capability to validate, account for, check, permanently store V0 data, and send status information to the provider of the ingested data.

9.7.2.1 Test Case B090720.010-ASF DAAC Ingest/Accountability of V0 Data/ Metadata from the V0 DAAC

The ASF DAAC Ingest/Accountability of V0 Data/Metadata from the V0 DAAC test case verifies the capability to ingest migration metadata; data products; and ancillary, correlative, and browse data from the V0 DAAC. Verification is also made to ensure that the ingested migration data is complete, accurate, and accounted for. Two types of migration data exist: static and operational. The Test method is used to verify that data/metadata ingest and accountability requirements are satisfied. This test case verifies the receipt and accountability of the V0 data from the V0 DAAC and follows the same test process described in section (9.1.3.1) "LaRC DAAC Ingest/Accountability of V0 Data from the V0 DAAC" with the idea that the data, operations, inputs, and expected results are specific to the ASF DAAC.

9.7.2.2 Test Case B090720.020-ASF DAAC Ingest Migration Documentation and Validation

The ASF DAAC Ingest Migration Documentation and Validation test case verifies the capability to ingest documentation related to the V0 migration data products. This documentation is formatted in one of the following digital text formats: ASCII text, Microsoft WORD, HTML, Interleaf, Postscript, and WordPerfect. The Test method is used to verify that requirements related to migration data documentation ingest and validation are satisfied. This test case verifies the ASF DAAC ingest and validation of V0 migration data documentation and follows the same test process described in section (9.1.3.2) "LaRC DAAC Ingest Migration Documentation and Validation" with the idea that the data, operations, inputs, and expected results are specific to the ASF DAAC.

9.7.2.3 Test Case B090720.030-ASF DAAC Migration Data/Metadata Validation and Compliance Check

The ASF DAAC Migration Data/Metadata Validation and Compliance Check test case verifies the capability to perform an automatic examination of the data header to check for anomalies in the ingested migration data. The capability to perform validation and compliance checks on the migration data/metadata ingested from the V0 DAAC is verified in this test case. A status report is generated, indicating the success or failure, of the data/metadata consistency checks. The Test method is used to verify that requirements related to the validation and compliance checking of migration data/metadata are satisfied. This test case verifies the ASF DAAC validation and compliance check of V0 migration data and follows the same test process described in section (9.1.2.4) "LaRC DAAC NOAA ADC Data/Metadata Validation and Compliance Check" with

the idea that the data, operations, inputs and expected results are specific to Migration Data/Metadata holdings at the ASF DAAC.

9.7.2.4 Test Case B090720.040-ASF DAAC Migration Metadata Extraction/ Verification

The ASF DAAC Migration Metadata Extraction/Verification test case verifies the capability to check for the presence of a unique granule id in the metadata header. Once the ingest process is complete, metadata is extracted and the data is identified, referenced, and stored. The Demonstration and Inspection methods are used to verify that the metadata extraction/verification requirements are satisfied. This test case verifies the ASF DAAC extraction and verification of metadata and follows the same test process described in section (9.1.2.5) "LaRC DAAC NOAA ADC Metadata Extraction/Verification" with the idea that the data, operations, inputs, and expected results are specific to Migration Data/Metadata holdings at the ASF DAAC.

9.7.2.5 Test Case B090720.050-ASF DAAC Migration Data Archiving

The ASF DAAC Migration Data Archiving test case verifies the capability to provide storage for the following types of V0 migration data: data products, browse data, associated metadata and documentation, ancillary data, and correlative data. Verification is performed to ensure the capability to archive the V0 migration product data, insert the metadata into the inventory, and update the data receipt log. The Test and Inspection methods are used to verify that the V0 migration data archiving requirements are satisfied. This test case verifies the ASF DAAC archiving of the V0 migration data and follows the same test process described in section (9.1.2.6) "LaRC DAAC NOAA ADC Data Archiving" with the idea that the data, operations, inputs, and expected results are specific to Migration Data/Metadata holdings at the ASF DAAC.

9.7.2.6 Test Case B090720.060-ASF DAAC Migration Data Maintain On-Line Directories

The ASF DAAC Migration Data Maintain On-Line Directories test case verifies the capability to update the guide, inventory, and directory databases when guide and inventory data is extracted from the migration metadata. The Test method is used to verify that the directories are updated with the correct information. This test case verifies the ASF DAAC update of directories and follows the same test process described in section (9.1.2.7) "LaRC DAAC NOAA ADC Data Maintain On-Line Directories" with the idea that the data, operations, inputs, and expected results are specific to the ASF DAAC.

9.7.3 ASF DAAC Coordinate Plans and Schedules Sequence

The ASF DAAC Coordinate SMC Plans and Schedules Sequence verifies that operational users receive updated schedules and reconfiguration directives from the SMC with regards to mission related planning and processing. The ability to coordinate the data processing plans and schedules through the use of software tools, either manually or automatically, is verified in this sequence. The capability of the users to receive reconfiguration directives from the SMC to

coordinate schedule priorities, resolve schedule conflicts, and operational assignments is verified in this sequence.

9.7.3.1 Test Case B090730.010-ASF DAAC Coordinate Updates to SMC Plans and Schedules

The ASF DAAC Coordinate Updates to SMC Plans and Schedules test case verifies the capability to provide its operations staff access to sufficient procedures detailing coordinating processes for SMC plans and schedules. These procedures are manual, automated, or a combination of the two. Verification by the Inspection method is used to ensure that requirements related to SMC plans and schedule maintenance are satisfied.

Inputs necessary for this test case include distinctive real or simulated reconfiguration directives for mission related planning and scheduling. The following reconfiguration directives are included in the test data sets: update schedule priorities, resolve schedule conflicts, and request changes in operational assignments. Requests for both standard and erroneous directives for SMC plans and schedule updates are included in the input data sets.

The outputs from this test case involves the inspection of the procedures pertaining to coordination of the plans and updates to schedules. The procedures for handling the SMC plans and schedules are validated by both automatic and manual aids. An output report is produced identifying the results of detecting and processing erroneous plan and schedules updates from the SMC.

9.8 ECS at the ORNL DAAC Data Ingest Operations Scenario

The ECS at the ORNL DAAC Data Ingest Operations Scenario details the activities performed by the ECS at the ORNL DAAC. The capability of the ECS at the ORNL DAAC to support the management, storage, and searching of metadata is verified in this scenario. During Release B testing, the following functions are verified in this scenario: V0 data interoperability and limited system resource management. For the remainder of this document, the term "ORNL DAAC" is used to reference "ECS at the ORNL DAAC".

9.8.1 ORNL DAAC V0 Data Receipt Sequence

The ORNL DAAC V0 Data Receipt Sequence verifies the capability to ingest static and operational related V0 migration data from the V0 ORNL DAAC. This sequence of tests verifies the capability to receive static data related migration data products, browse data, associated metadata and documentation, ancillary and correlative data from the DAAC V0 DADS. In the case where the data is operational data, this sequence verifies the capability to ingest operational data products, browse data, and associated metadata from the DAAC V0 PGS according to an agreed upon schedule. Verification is performed to ensure the capability to validate, account for, check, and permanently store the V0 migrated data. The ability of the DAAC V0 users to receive status information on their ingested products is also verified in this sequence.

9.8.1.1 Test Case B090810.010-ORNL DAAC Ingest/Accountability of V0 Data/ Metadata from the V0 DAAC

The ORNL DAAC Ingest/Accountability of V0 Data/Metadata from the V0 DAAC test case verifies the capability to ingest migration metadata; data products; and ancillary, correlative, and browse data from the V0 DAAC. Verification is also made to ensure that the ingested migration data is complete, accurate, and accounted for. Two types of migration data exist: static and operational. The Test method is used to verify that data/metadata ingest and accountability requirements are satisfied. This test case verifies the ORNL DAAC receipt and accountability of the V0 data from the V0 DAAC and follows the same test process described in section (9.1.3.1) "LaRC DAAC Ingest/Accountability of V0 Data from the V0 DAAC " with the idea that the data, operations, inputs, and expected results are specific to the ORNL DAAC.

9.8.1.2 Test Case B090810.020-ORNL DAAC Ingest Migration Documentation and Validation

The ORNL DAAC Ingest Migration Documentation and Validation test case verifies the capability to ingest documentation related to the V0 migration data products. This documentation is formatted in one of the following digital text formats: ASCII text, Microsoft WORD, Hyper-Text Markup Language (HTML), Interleaf, Postscript, and WordPerfect. The Test method is used to verify that requirements related to migration data documentation ingest and validation are satisfied. This test case verifies the ORNL DAAC ingest and validation of V0 migration data documentation and follows the same test process described in section (9.1.3.2) "LaRC DAAC Ingest Migration Documentation and Validation" with the idea that the data, operations, inputs, and expected results are specific to the ORNL DAAC.

9.8.1.3 Test Case B090810.030-ORNL DAAC Migration Data/Metadata Validation and Compliance Check

The ORNL DAAC Migration Data/Metadata Validation and Compliance Check test case verifies the capability to perform an automatic examination of the data header to check for anomalies in the ingested migration data. The capability to perform validation and compliance checks on the migration data/metadata ingested from the V0 DAAC is verified in this test case. A status report is generated, indicating the success or failure, of the data/metadata consistency checks. The Test method is used to verify that requirements related to the validation and compliance checking of migration data/metadata are satisfied. This test case verifies the ORNL DAAC validation and compliance check of V0 migration data and follows the same test process described in section (9.1.2.4) "LaRC DAAC NOAA ADC Data/Metadata Validation and Compliance Check" with the idea that the data, operations, inputs, and expected results are specific to Migration Data/Metadata holdings at the ORNL DAAC.

9.8.1.4 Test Case B090810.040-ORNL DAAC Migration Metadata Extraction/ Verification

The ORNL DAAC Migration Metadata Extraction/Verification test case verifies the capability to check for the presence of a unique granule id in the metadata header. Once the ingest process is complete, metadata is extracted and the data is identified, referenced, and stored. The

Demonstration and Inspection methods are used to verify that the metadata extraction/verification requirements are satisfied. This test case verifies the ORNL DAAC extraction and verification of metadata and follows the same test process described in section (9.1.2.5) "ECS LaRC DAAC-ECS NOAA ADC Metadata Extraction/Verification" with the idea that the data, operations, inputs, and expected results are specific to Migration Data/Metadata holdings at the ORNL DAAC.

9.8.1.5 Test Case B090810.050-ORNL DAAC Migration Data Archiving

The ORNL DAAC Migration Data Archiving test case verifies the capability to provide storage for metadata and documentation associated with the V0 migration data. Verification is performed to ensure the capability to archive the V0 migration product data, insert the metadata into the inventory, and update the data receipt log. The Test and Inspection methods are used to verify that the V0 migration data archiving requirements are satisfied. This test case verifies the ORNL DAAC archiving of the V0 migration data and follows the same test process described in section (9.1.2.6) "LaRC DAAC NOAA ADC Data Archiving" with the idea that the data, operations, inputs, and expected results are specific to Migration Data/Metadata holdings at the ORNL DAAC.

9.8.1.6 Test Case B090810.060-ORNL DAAC Migration Data Maintain On-Line Directories

The ORNL DAAC Migration Data Maintain On-Line Directories test case verifies the capability to update the guide, inventory, and directory databases when guide and inventory data is extracted from the migration metadata. The Test method is used to verify that the directories are updated with the correct information. This test case verifies the ORNL DAAC update of directories and follows the same test process described in section (9.1.2.7) "LaRC DAAC NOAA ADC Data Maintain On-Line Directories" with the idea that the data, operations, inputs, and expected results are specific to Migration Data/Metadata holdings at the ORNL DAAC.

9.8.2 ORNL DAAC Coordinate Plans and Schedules Sequence

The ORNL DAAC Coordinate SMC Plans and Schedules Sequence verifies that operational users receive updated schedules and reconfiguration directives from the SMC with regards to mission related planning and scheduling. The ability to coordinate the plans and schedules through the use of software tools, either manually or automatically, is verified in this sequence. The capability of the users to receive reconfiguration directives from the SMC to coordinate schedule priorities, resolve schedule conflicts, and operational assignments is verified in this sequence.

9.8.2.1 Test Case B090820.010-ORNL DAAC Coordinate Updates to SMC Plans and Schedules

The ORNL DAAC Coordinate Updates to SMC Plans/Schedules test case verifies the capability to provide its operations staff access to sufficient procedures detailing coordination processes for SMC plans and schedules. These procedures are manual, automated, or a combination of the two. Verification by the Inspection method is used to ensure that requirements related to SMC

plans and schedule coordination are satisfied. This test case verifies the ORNL DAAC coordination of SMC plans and schedules and follows the same test process described in section (9.7.3.1) "ASF DAAC Coordinate Updates to SMC Plans and Schedules" with the idea that the data, operations, inputs, and outputs specific to the ORNL DAAC.

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